

DEFENSE SYSTEMS
MANAGEMENT COLLEGE

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EUROPE 1992

**CATALYST FOR
CHANGE IN
DEFENSE
ACQUISITION**

**REPORT OF THE
DSMC 1989-90
MILITARY
RESEARCH FELLOWS**

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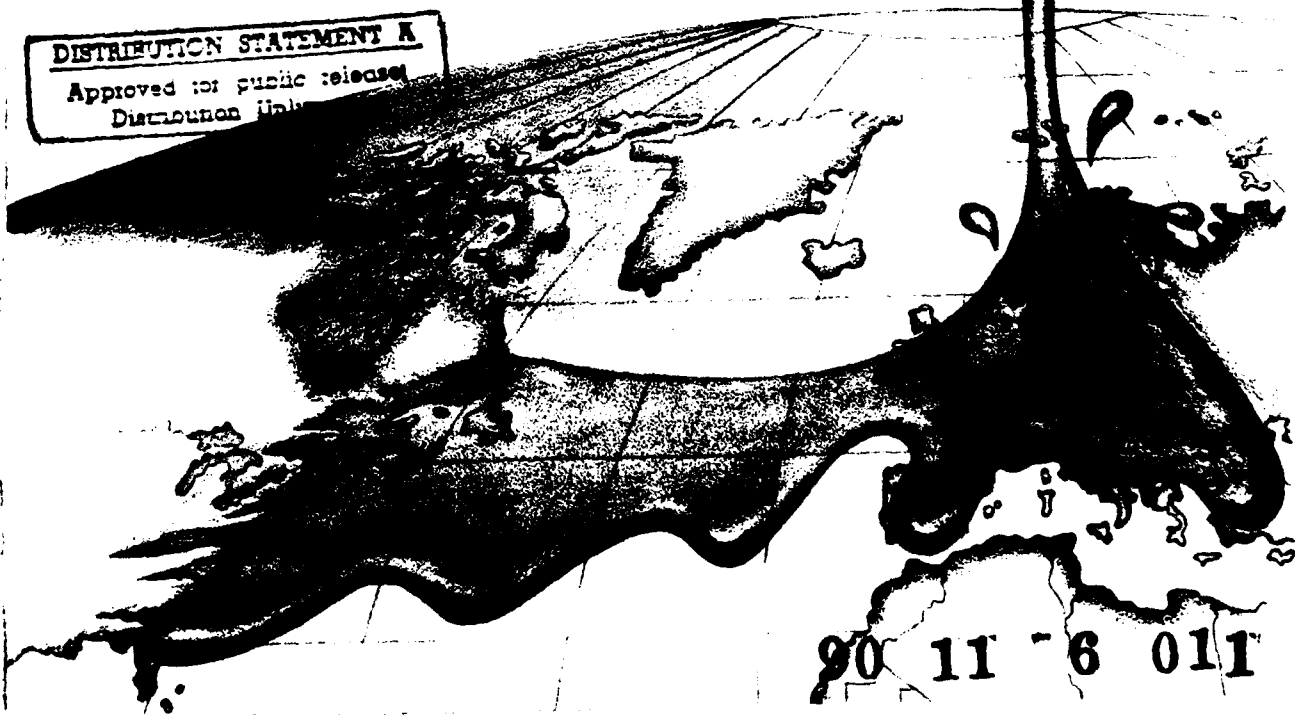
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PREFACE

This study represents the combined efforts of three military Research Fellows involved in an 11-month, senior service college level research program. Chartered by the Under Secretary of Defense for Acquisition, the program has a dual purpose; first, to provide professional military education for three selected officers from the Army, Navy and Air Force and, second, to conduct research in a subject of interest to the U.S. acquisition community. In keeping with its role as the center for systems management education in the Department of Defense, the Defense Systems Management College (DSMC), in cooperation with the Harvard Business School, provided the means for conducting this study. The program included a 3-month resident Program for Management Development (PMD) course at the Harvard University Graduate School of Business.

After Harvard, the three fellows immersed themselves in a study of the influential economic movement called Europe 1992. Although external to the United States and its Department of Defense, the Europe 1992 movement will nevertheless generate substantial effects on the U.S. defense acquisition community. It was thought that such a study about this strong external influence could be of great value to a U.S. defense acquisition community occupied with internal changes brought about by an administration change and the Defense Management Review process. To research this subject, the fellows conducted a traditional literature

search and more than 53 interviews with executives and representatives from U.S. and European industry, government and academia. Any references in this study to Europe or Europeans refer to European Community or NATO Europe. References to Eastern Europe are noted or identified.

During the writing of this report, changes were occurring daily throughout the world that were of great interest to those working in defense acquisition. The fellows were naturally tempted to turn to global movements other than Europe 1992 and study and write about those changes as well. Changes in the Soviet Union, Eastern Europe and the two Germanys can be expected to have interesting impacts, such as declining defense budgets and a move toward surveillance, communications, and systems modification requirements by the Western World's military. Other changes, perhaps not as well publicized, also will affect defense acquisition. For example, it became obvious after studying the changing European acquisition community that burgeoning defense industries in Japan and the Pacific Rim nations will contribute to changes in the acquisition communities of the United States and Europe. For a discussion of Japanese and the Pacific Rim nations' impacts to U.S. defense acquisition, the fellows recommend an excellent report by the Defense Science Board, *Defense Industrial Cooperation with Pacific Rim Nations*. Another interesting change is the improving Third World's defense

industries. This too can be expected to create ripples in the world's defense acquisition communities. Unfortunately, the limited time available did not permit a creditable examination of these other relevant geopolitical changes and their impacts on defense acquisition. Perhaps other research fellows and experts in the field of defense acquisition will take it upon themselves to study and write about some of the above global changes and their effects on acquisition. The authors of this report highly recommend such an endeavor. Not only is the world of international defense markets and industries fascinating, it is a broadening exercise that can provide researchers with a clearer, more comprehensive view of the world. Meanwhile, the above Defense Science Board report and this study should provide food for thought for interested readers.

Readers pressed for time may wish to proceed directly to the Executive Summary where pertinent points and recommendations are summarized. For others, Chapter One begins with an explanation of just what Europe 1992 is. Those familiar with the European Community and its Europe 1992 program may want to skim Chapter One and go to Chapter Two's discussion on parallel government movements (encouraged in part by Europe 1992) that are changing the structure of the demand side of the European armaments market. Chapter Three examines the restructuring European Defense industry and the initial response by the U.S. defense industry. Chapter Four discusses impacts these combined changes in the European acquisition community may have on the U.S. acquisition

community. Finally, Chapter Five provides conclusions and recommendations.

A project of this size could not have been completed without the cooperation and contributions of many others. Throughout the writing of this document, the fellows were genuinely thankful for the help their associates provided. The faculty and staff at Harvard and DSMC were especially helpful with their support and encouragement throughout the 11 months of this program. Special thanks are owed to Dr. Jacques S. Gansler of The Analytic Science Corporation and Professor Steven Wheelwright of Harvard Business School for their insightful reviews and suggestions on the first draft. Both sets of suggestions resulted in a restructuring and an inclusion of ideas that substantially improved the study. The fellows also appreciate the efforts of Ms. Caroline Girelli of the French Ministry of Defense and Ms. Susan Scholefield of the United Kingdom Ministry of Defense for their reviews of the first draft for accuracy from the European viewpoint. Lieutenant Colonel Lee Aldrige, USAF, of the Paris Office of Defense Cooperation is owed special thanks not only for his review of the draft, but also for the extra effort he put forth to ensure that interviews held in Europe were productive and insightful. Thanks are owed to all the government and industry experts listed in Appendix J who were contacted for this study. Without the generous gift of their time and candid insights, the fellows' search for information would have been much more difficult. The publications staff at DSMC put in many hard hours working on this study to make sure it is of the usual high quality produced by DSMC. Mrs.

Katie Clark, the editor for this study, and Mr. Greg Caruth, in charge of layout and graphics, were especially helpful. Mr. Ed Trusela, Air Force Chair at DSMC and Chairman of the NATO Airborne Warning and Control Systems Program Management Organization, who first suggested the subject of Europe 1992, was a great help with his encouragement and support during the writing of this study. Captain Ralph W. Ortengren, Jr., USN, Dean of Research and Information at DSMC, and Lieutenant Colonel David Scibetta, USA, Director of Research at DSMC, must be given extra special thanks for providing a supportive environment and the academic freedom necessary to produce a document of this type.

This preface could not be ended without thanks to the DSMC librarians and

DSMC research assistant Ms. Joan Sable. The fellows' request for unusual and hard-to-find information never seemed to faze these good natured people. The list of thank-yous goes on. Unfortunately, space and the pressures of deadlines prevent personal thanks from going out to all those who contributed to and helped with this study. Heartfelt thanks are extended to all those not mentioned.

The three fellows wish to dedicate this effort to military spouses throughout the Department of Defense for putting up with the hardships and disappointments often associated with military life. The highest thanks are due to three of those wives who are particularly special: Jane, Jeannie, and Janet.

Introduction

In 1781, when British General Charles Cornwallis surrendered to General George Washington at Yorktown, the British band put on their finest red coats and marched past American and French generals playing a ditty popular in England. The song's prophetic title was "The World Turned Upside Down."

Today, that tune could just as well be played to describe what is happening on the other side of the Atlantic. Europe's world is being turned upside down as it goes through changes rivaling the ones that sent America on its course of greatness. Warsaw Pact nations are breaking loose from the chains of communism; the two Germanys are uniting, creating turmoil within the North Atlantic Treaty Organization; and 12 European Community nations are racing forward to create the world's largest common market through a widely influential program called Europe 1992.

Travel to Brussels, European Commission headquarters, and you will see the blue European flag with 12 yellow stars hanging above streets and shop fronts. The European Community even has an anthem, Beethoven's "Ode to Joy," symbolizing their new togetherness. Talk to Europeans in Paris and London and you'll hear they are genuinely proud to be part of this determined movement. Once, Japan was the only concern of U.S. industrialists and economists. Now, the spotlight of economic concern is shifting east to the Europe 1992

program with its 279 directives and regulations designed to make European industries more efficient, world-class competitors.

Yet, this Europe 1992 program is not the only European movement changing the way Europeans plan to do business. Fueled by the Europe 1992 fever, the Independent European Program Group (IEPG), a 13-nation government organization dedicated to restructuring the European defense market, seems determined to combine previously fragmented and protected national markets into a single, coherent European armaments market. As the IEPG works to bring the demand side of European weapons acquisition together, European defense firms are doing their share on the supply side by undergoing their largest restructuring and rationalization since the end of World War II.

Add this massive restructuring of Europe's defense industry to the IEPG movement, throw in the synergistic Europe 1992 benefits to European businesses in general, and a picture of a changing European defense acquisition community becomes clear. Europe is creating a more efficient, competitive, and self-reliant defense acquisition community that will be able to deal with the world and the United States on more equal terms.

How the United States responds to this stronger, more independent European

defense acquisition community will impact our defense industrial base, our balance of defense trade with Europe, and the level and number of cooperative defense programs the United States has with Europe. Significantly, this changing order in the defense arena is presenting itself at a time the United States has a declining defense budget with more programs on its books than it can afford -- a time when the United States would do well to look toward more cooperative programs to share the burden of expensive weapons developments.

Unfortunately, transatlantic armaments collaboration, especially in cooperative programs, is an area where the United States has fragmented, often contradictory policies and procedures. Thus, the stage is set for the United States to suffer from Europe's emerging acquisition community if policy and procedure changes are not made. As chessmaster Savielly Grigorievitch Tartakower said about opening movements in chess: "The mistakes are all there waiting to be made."

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"A day will come when...all of you, all nations of the Continent will merge tightly, without losing your identities and your remarkable originality, into some higher society and form a European fraternity.... A day will come when markets, open to trade, and minds open to ideas, will become the sole battlefields."

— Victor Hugo

CHAPTER 1

The European Community and Europe 1992: An Overview

Introduction

Protectionism, subsidization, national champions, quotas, tariffs, overcapacity, fragmentation, and rampant nationalism -- when applied to any nation's economic and industrial policies -- bring to mind an unfavorable condition from an outsider's vantage point. Collectively, the terms may represent (at least in the long-term) barriers precluding the very goals a country seeks by adopting such actions in the first place; mainly, innovation, progress, competitiveness, growth and prosperity.

Such barriers do not, however, characterize initiatives making up the vision and direction represented by Europe 1992. Instead, the program represents Western European governments, business and industrial communities desperate moves away from such negative concepts as they come to grips with, and try to position themselves, in the globalizing and highly competitive world economy.

Europe 1992 is a road map for leading Europe away from her fragmented, divisive, inefficient and protected national markets. Europe 1992 is a plan for new laws and regulations that by 1992 will remove all barriers to the free movement of goods, services, capital and people within participating countries. However, it must not be regarded as an event but, rather, a process that will take perhaps decades to implement fully.

Europe 1992, when fully implemented, hopes to see the European business community just as competitive in world markets as the United States and Japan, by creating a home market large enough to support capital investments necessary to compete in the industries of the future -- biotechnology, electronics, telecommunications, information technology, etc.

Europe 1992 means creating an environment that allows and encourages

the leveraging of natural and created advantages inherent in each participating country. Europe 1992 is a symbol for final transformation of the European economy and completion of the internal market envisioned by the Treaty of Rome in 1957 whose ideal and goal of creating a Common Market have gone largely unrealized; the European economy has stagnated compared to those of the United States and Pacific Rim nations. The year 1992 is less important than specific initiatives making up the program itself. December 31, 1992, is the date set by the European Commission for approving and adopting 279 proposed directives which, when given the force of law by each member country, will complete Europe's internal market and free the European economy from its self-imposed regulatory constraints. In doing so, Europe hopes to position itself as the largest and most competitive trading block in the world.

History of the European Community

The European Community (EC), originator of the Europe 1992 program, was created in the wake of World War II to help prevent further war and unite Western European countries as they attempted to rebuild their economies (See Figure 1-1). The relationship has often been referred to as the Common Market because it sought to be a single trading entity where goods moving between countries are not subject to tariffs, and imports enter under uniform conditions. Membership was, and is, open to any European democracy. With its current membership, the EC represents the largest trading block in the world with more than 320 million consumers. The

current trend toward democratization and implementation of Free Market economies of the Eastern European countries will probably lead to increased membership by the year 2000.

Origins of the European Community

In May 1950, the Foreign Minister of France, Robert Schuman, proposed a plan to unite European steel and coal industries as a first step in uniting Europe. Unification of Europe was considered critical to assuring return of peace and prosperity to Europe. The first step would require elimination of age-old animosities between France and Germany. To this end, Schuman proposed that their respective coal and steel industries be placed under a common authority within an organization that would be open to other European countries.

European Coal and Steel Community

Five countries (Belgium, Federal Republic of Germany, Italy, Luxembourg, the Netherlands) accepted the French proposal and signed the European Coal and Steel Community (ECSC) Treaty in Paris in April 1951. They established a governing institution called the ECSC High Authority and member governments subsequently transferred the necessary requisite sovereign powers. The High Authority comprised representatives from each government. Disputes on matters covered by the ECSC Treaty were adjudicated by an established Court of Justice. The ECSC Treaty was successful as coal and steel trade among the six member countries increased by 129 percent in the first 5 years.

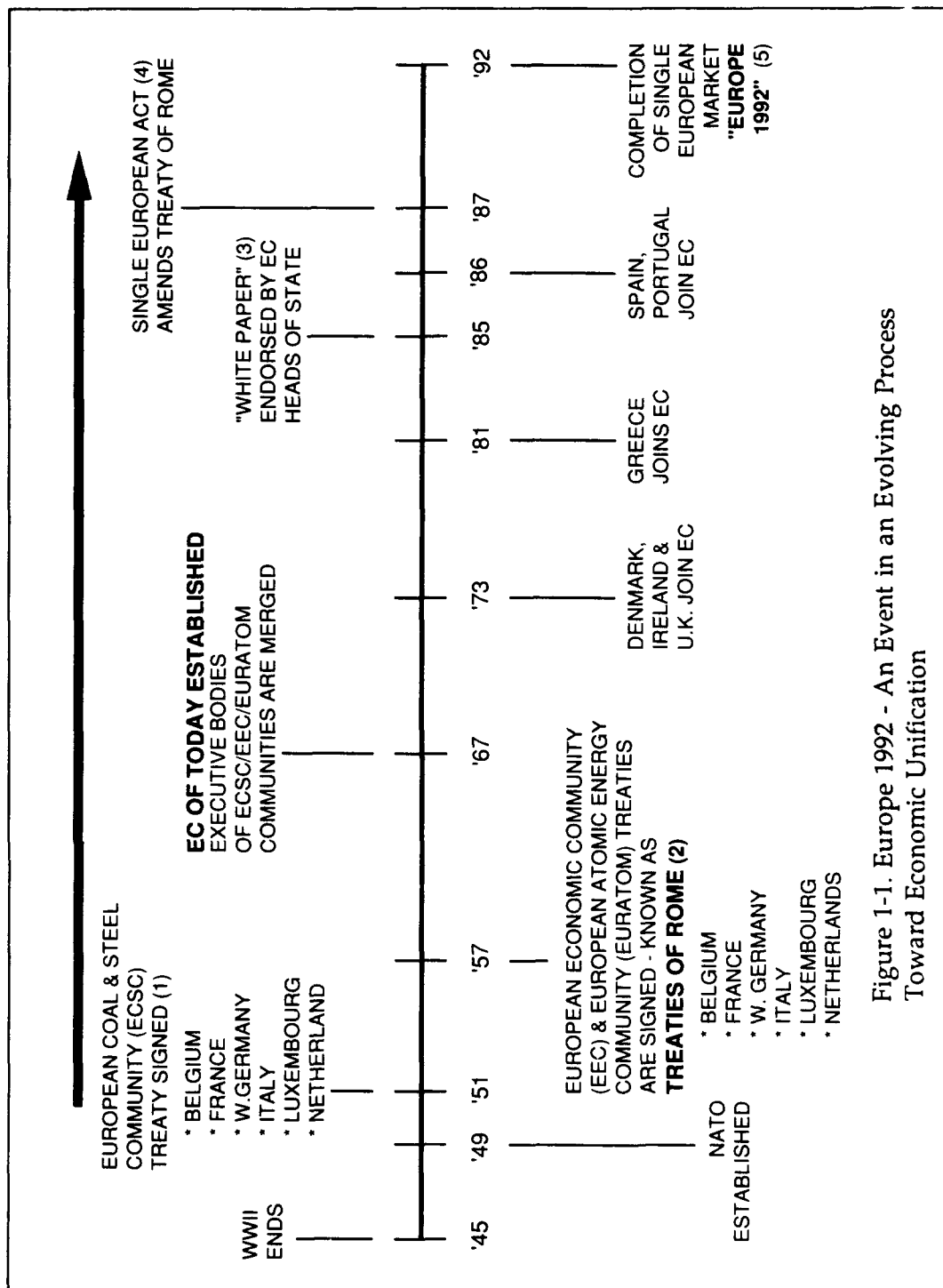


Figure 1-1. Europe 1992 - An Event in an Evolving Process
Toward Economic Unification

(1) - ECSC COMMUNITY TREATY - FRANCE 'S & GERMANY'S COAL AND STEEL INDUSTRIES ARE BROUGHT UNDER A COMMON EUROPEAN AUTHORITY AS A MEANS OF PREVENTING FUTURE WARS - BELGIUM, ITALY, LUXUMBOURG AND NETHERLANDS JOIN ALSO

(2) - TREATIES OF ROME: GOAL TO CREATE A COMMON MARKET FREE OF RESTRICTIONS ON THE MOVEMENT OF GOODS, SERVICES, PEOPLE AND CAPITAL

(3) - THE "WHITE PAPER" IS A PLAN CALLED "EUROPE 1992" PRODUCED BY THE EUROPEAN COMMISSION CONTAINING 279 PROPOSED DIRECTIVES WHICH WHEN IMPLEMENTED BY THE MEMBER STATES WOULD FINALLY COMPLETE THE CREATION OF A TRUE "COMMON MARKET" ENVISIONED BUT UNREALIZED BY THE TREATY OF ROME IN 1957

(4) - SINGLE EUROPEAN ACT: RECOMMITMENT BY MEMBER STATES TO THE GOAL OF COMPLETING THE INTEGRATION OF EUROPE'S INTERNAL MARKETS BY 31 DECEMBER 1992; HENCE, "EUROPE 1992"

(5) - COMPLETION BY 31 DECEMBER 1992 REFERS ONLY TO THE ADOPTION OF THE 279 PROPOSED DIRECTIVES BY THE EUROPEAN COUNCIL - FULL IMPLEMENTATION AT THE STATE LEVEL WILL TAKE YEARS

Figure 1-1. Europe 1992 - An Event in an Evolving Process
Toward Economic Unification (Continued).

Treaty of Rome

The ECSC Treaty was so successful that efforts continued in an attempt to further unite Europe economically. In 1957 at Rome, the six members signed two additional treaties; the European Economic Community (EEC) Treaty and the European Atomic Energy Community (EURATOM) Treaty. The EEC attempted to merge separate markets within the countries into large, single markets (Common Market) for all goods with common economic policies. The EURATOM was to further the use of nuclear energy technology. These two treaties are commonly referred to as the Treaty of Rome.

The Treaty of Rome called for dismantling quotas and barriers to trade between member countries, establishment of a customs union, and free movement of people, services and capital. Trading partners around the world were affected by this since duties of individual countries were merged into a single common tariff for imports into the European Economic Community (EEC) nations, effectively making trade with Europe more efficient. The Treaty of Rome called for more far-reaching measures that would hasten the establishment of a single integrated European market; member countries were to adopt common policies in agriculture, transportation, antitrust law and external trade that would touch every aspect of economic and social life.

Three Communities Unite

As originally established the three European Communities; European Coal and Steel Community (ECSC), European

Economic Community (EEC), and European Atomic Energy Community (EURATOM) each had separate executive bodies but, in 1967, all three were merged, creating the basic structure for what is known today as the **European Community**. The task of achieving the aims of the three communities rests with four executive institutions of the European Community:

- (1) European Commission
- (2) European Council
- (3) European Parliament
- (4) European Court of Justice.

European Community of Twelve

In 1973, Denmark and Ireland and the United Kingdom joined the EC. Greece joined in 1981, followed by Spain and Portugal in 1986, completing its current membership of 12 countries:

- (1) Belgium
- (2) Spain
- (3) Denmark
- (4) United Kingdom
- (5) France
- (6) Federal Republic of Germany
- (7) Greece
- (8) Ireland
- (9) Italy
- (10) Luxembourg
- (11) The Netherlands
- (12) Portugal

Single European Act of 1986

Customs union was established quickly as a result of the Treaty of Rome and significant progress was made with regard to the free movement of goods and

people. However, a number of administrative, physical and technical barriers continued to exist which prevented creation of a genuine single market. Although various treaties establishing the European Community limited its competence to economic matters, the desire for more political union has remained strong.

In 1985, the Commission of the European Community issued its White Paper entitled **Completing the Internal Market**. It outlined provisions and a timetable for further integration of the economies of the 12 member nations into a true Common Market. As a result, in 1986 the European Community's founding treaties (See Figure 1-2) were fundamentally revised when the EC heads of state signed the **Single European Act** (see Appendix A for significant excerpts). This ratified a new plan and commitment toward achieving the goal of integrating the European marketplace into a single economy or Common Market begun with the signing of the Treaty of Rome in 1957.

European Community Events

Most important is that the Single European Act provides the necessary political authority to complete European economic integration. This empowers the European Council to adopt legislation concerning issues relating to the internal market using a **qualified majority vote** procedure vice the unanimous vote which had heretofore been required and attributed with lack of progress. It gave formal legal status to European Political Cooperation (EPC) where EC foreign

ministers meet regularly to formulate joint positions on international issues. The framework of the European Political Cooperation is significant because it generates political will and solidarity in the area of foreign policy. The Single European Act formalized this process and created a secretariat in Brussels to administer it.

The European Community Executive Institutions

Structure and Functions of the European Community

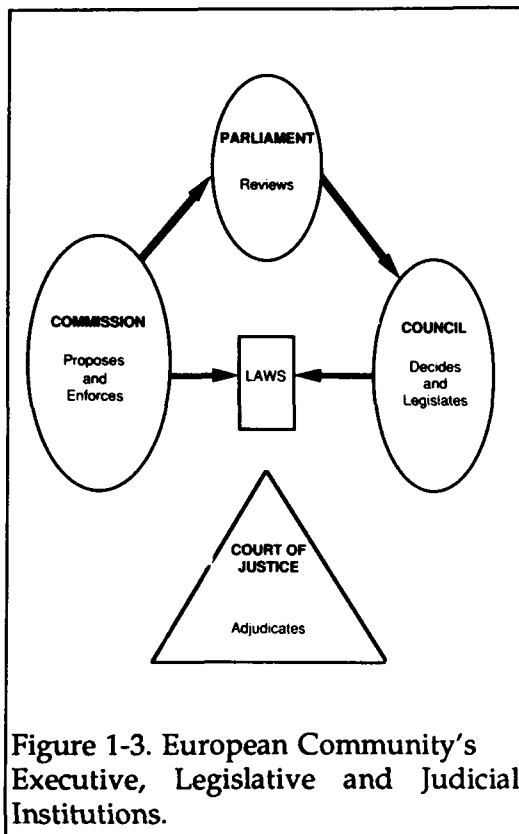
The three founding treaties of the European Community created governing bodies--Executive, Legislative and Judicial which would have the authority to unite Europe (See Figure 1-3).

Building the fabric of European economic union rests with these institutions. Although the treaties laid the foundations, the governing structure itself still had to be erected. Even once that structure is in place for a particular sector, the institutions are responsible for the formulation and the day-to-day implementation of the Community policy that is to replace the Member States' separate policies. Each member country surrendered a degree of national sovereignty to empower the European Commission with the authority to enforce Community directives and regulations with the force of law. This distinguishes the European Community governing institution from any other international organization.

1950	May 9 French Foreign Minister Robert Schuman makes a proposal to place Europe's coal and steel economies under a common European authority.	1976	April 1 First Lome Convention with African, Caribbean and Pacific countries enters into force.
1951	April 18 Treaty creating the European Coal and Steel Community (ECSC) is signed in Paris.	1979	May 28 Greece signs Accession Treaty. June 7-10 In the first direct elections, the citizens of the nine member states vote for the 410 members of the European Parliament.
1957	March 25 Treaties creating the European Economic Community (EEC) and the European Atomic Energy Community (EURATOM) are signed.	1981	January 1 Greece joins the Community.
1958	January 1 EEC and EURATOM Treaties take force.	1984	June 14-17 In the second direct elections, the citizens of the 10 member states vote for the 434 members of the European Parliament.
1965	April 8 Six sign treaty merging Community's executive institutions: ECSC, EEC, & EURATOM.	1985	February 1 Greenland, which joined as part of Denmark, leaves the Community, but maintains close economic ties. June 12 Spain and Portugal sign Accession Treaty. June 29 E.C. Heads of State or Government endorse a "white paper" outlining a strategy for creating a true common market by 1992.
1968	July 1 Customs union is completed 18 months early. Remaining industrial tariffs between the Six are abolished. Common external tariff enters into force.	1986	January 1 Spain and Portugal join the Community. February 28 Signature of the Single European Act by member states is completed, providing for fundamental revisions in the Community's founding treaties.
1972	January 22 Denmark, Ireland, Norway and the United Kingdom sign Accession Treaty. September 26 Norwegian entry to Community is rejected by referendum.		
1973	January 1 Denmark, Ireland and the United Kingdom join the Community. Free Trade Agreements with European Free Trade Association countries begin to take force.		

Source: *The Commission of the European Communities*

Figure 1-2. European Community Events



European Commission

Purpose:

- (1) Propose Legislation
- (2) Implement Community Policy
- (3) Enforce Community Rules
- (4) Manage Community Budget
- (5) Conduct Trade Negotiations

The Commission, guardian of the treaties, has investigative powers and can take legal action against companies or member states that are violating EC rules. The 17 Commissioners -- two each from France, the Federal Republic of Germany, Italy, Spain and the United Kingdom and

one each from the other member states -- are appointed by unanimous agreement among the member states. They act in the Community's interest independent of their national governments during their 4-year terms.

Under the Treaty of Rome, any measure of general application or of a certain level of importance must be enacted by the Council of Ministers. The Commission, then, has the permanent right and duty to initiate action. If it submits no proposals, the Community is paralyzed and Community progress would come to a halt in agriculture, transport, commercial policy, harmonization of legislation, or whatever the field might be.

The Commission's administrative staff, numbering about 11,000 and based mostly in Brussels, is divided among the more than 20 directorates-general and agencies. These jobs offer high pay and prestigious careers and are some of the most highly sought in Europe. Like the powerful Japanese Ministry of International Trade and Industry (MITI), Europeans have placed a high priority in attracting and retaining the best Europe has to offer where economic matters are concerned.

European Council of Ministers

Purpose:

- (1) Vote on Proposed Legislation
- (2) Final EC Decision-making Body

The Council comprises 12 ministers from member states and meets every six months. Participants in the meetings change according to the agenda:

Agriculture ministers discuss farm prices, and Economic ministers discuss monetary affairs, etc. Ministers represent and defend interests of their countries, while seeking agreements promoting the Community's goals. The presidency of the Council rotates among member states every six months with semi-annual meetings in Brussels and Luxembourg. In one of the most important reforms, the Single European Act provides for **majority voting** by the Council in certain areas that previously required **unanimity**, significantly extending the Council's scope for taking majority decisions, particularly with regard to completing the internal market. Ratification of this change by the 12-member states marked a fundamental change of their political attitudes. Council decisions are now taken on a majority basis, significantly accelerating the legislative process while rendering the whole system more flexible and dynamic. This change was years in the making and reflected the maturity of the system and, moreover, the basic trust each country has developed in the integrity of the Community's duty to protect and safeguard each member state's vital interest. It also sent a strong message to the private sector about the degree of public sector commitment on completing the internal market that could be anticipated.

European Parliament

Purpose:

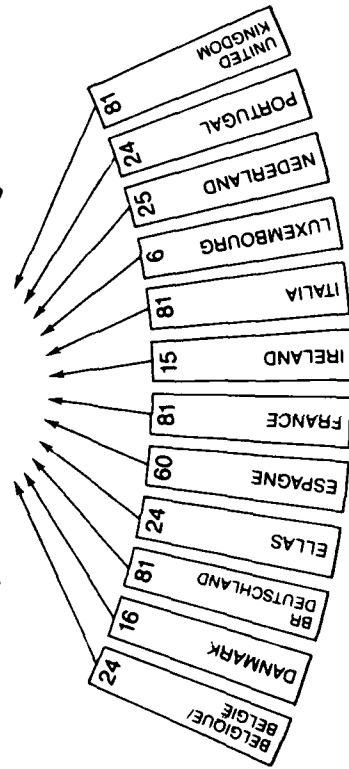
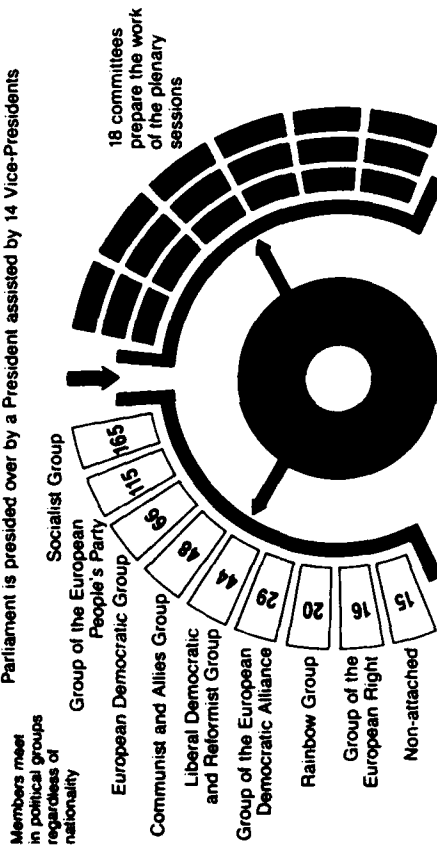
- (1) Prepare Opinions on Proposed Legislation
- (2) Amend Proposed Legislation

- (3) Question the Council and the Commission
- (4) Authority to Dismiss the Commission
- (5) Final Approval of the EC Budget

The European Parliament is the Community's only directly elected body of 518 members. Formally appointed from national parliaments, members of the European Parliaments since 1979 have been elected directly by citizens of the Member States of the Community for five-year terms. Members form Community-level political, rather than national groups (See Figure 1-4). The fact that the Commission is answerable to Parliament alone guarantees the Commission's independence; and it's the Commission's independence that allows majority voting in the Council to work. Parliament, therefore, keeps constant watch on the Commission's doings, making sure that it faithfully represents the Community interest, always ready to call it to order if it gives the impression of yielding to the lobbying of national governments. Despite its repeated demands, the Parliament which meets in Strasbourg, France, has not been given legislative powers like those of national parliaments.

However, the Single European Act did confer upon it a joint decision-making power relative to issues of accession to the Community by new member states. Secondly, it allows Parliament to participate in decisions applicable to qualified majority decisions having a bearing on the internal market and social policy.

European Parliament: 518 members



Political composition of the European Parliament (situation on 13 June 1988)

Source: *Working Together*, European University Institute

Figure 1-4. Political Composition of the European Parliament (situation on 13 June 1988).

The Legislative Process

The EC legislative process is summarized as follows:

- (1) Council adopts a "common position." This position is referred back to the Parliament which has three months to endorse, reject or amend it. The Commission has one month to decide whether or not to accept and endorse any amendments proposed by the Parliament.
- (2) The Council then proceeds with its second reading.
- (3) If Parliament has rejected the Council's "common position," unanimity is required to adopt the proposal. If the Parliament proposed amendments, the Council votes by qualified majority where the Commission has endorsed them and unanimously where the Commission has been unable to do so.
- (4) If the Council fails to reach a decision within three months, the Commission proposal is deemed not to have been adopted.

While the Commission remains the driving force behind drafting legislation, this procedure gives Parliament a direct influence on decisions, even though the final word still rests with the Council.

European Court of Justice

Purpose:

- (1) Interprets EC Law for the National Court -- Rulings are Binding
- (2) Rules on Legal Questions Pertaining to Founding Treaties

The Court of Justice, sitting in Luxembourg, is the Community's Supreme Court. The Court comprises 13 judges, assisted by six advocates-general. Both groups are appointed for six years by mutual consent of the member states. There has been a steady rise in the number of cases referred to the Court by national courts bearing witness to the closer working cooperation among these institutions. This has permitted Community law to be uniformly enforced in all the member countries and has helped build a consistent body of European case-law.

Europe 1992 - The Program

The program includes 279 proposed directives issued by the European Commission of the EC in its white paper entitled, **Completing The Internal Market**. It called for new laws and regulations that will eliminate remaining barriers affecting the intra-European movement of goods, services, capital and people. This involved the removal of three types of barriers: (1) **physical barriers**, which included intra-EC border stoppages, customs controls, and associated paperwork; (2) **technical barriers**, which involved meeting divergent national product standards, technical regulations and conflicting business law, and the opening of nationally protected public procurement markets; and (3) **fiscal barriers**, which mainly dealt with rates of value-added-tax (VAT) and excise duties. The directives were designed to eliminate many costs and constraints facing European firms and thereby increase their efficiency and competitiveness. Appendix

B lists the major elements of the Europe 1992 program and the expected economic benefits, which according to studies directed by the European Commission could include up to a 5 percent growth in the EC's gross domestic product, 2-5 million new jobs and up to a 6 percent decrease in average consumer prices.

Progress Report

Each of the 279 proposed directives must be formally adopted by the European Council on a one-by-one basis. Once approved, the intent and required results of each directive are binding on Member States, but the method of implementations is left to the national governments. Many of the directives, once adopted by the European Council, must then be translated into national law by each of the 12 Member

States. Implementation and institutionalization of these directives will not truly begin until this point which should provide some appreciation for the time frames required for a meaningful completion of the internal market. For this reason, it would probably be more accurate to think of Europe 1992 as a starting date or a point of departure for what some have called the largest deregulation in economic history which may lead to the largest convergence of national cultures in the history of mankind.

Official Progress reported by the EC as of June 1989, in formally adopting the 279 proposed directives, was at 50 percent. At the time of this writing, it is estimated that up to 65 percent of the proposed directives have been adopted. As Figure 1-5 indicates, substantial progress has been made in many areas; however,

C RADE:	A=BIG STRIDES	B=NEEDS WORK	C=LITTLE PROGRESS
PHYSICAL BARRIERS		A (BORDER STOPPAGES, CUSTOMS CONTROL)	
FINANCIAL SERVICES		A (BANKING, INSURANCE, SECURITIES)	
MERGERS & ACQUISITIONS		A (CROSS-BORDER DEALS)	
SERVICE INDUSTRY REGS		B (MARKETING, TRANSPORTATION, ENERGY)	
INDUSTRIAL STANDARDS		B	
MONETARY UNION		B	
LABOR		C (WORKER RIGHTS/PARTICIPATION)	
TAXES		C	
NATIONAL PUBLIC PROCUREMENTS		C (PUBLIC WORKS, SUPPLY CONTRACTS)	

Figure 1-5. A Status Report: EC Preparations For 1992.

many of the tough issues have not progressed well and threaten the momentum of Europe 1992 with the deadline fast approaching. Distractions such as Eastern Europe and the unification of Germany are tending to de-focus European Community attention as they struggle with these difficult issues.

Public procurement (in this context excludes defense weapon systems), standardized tax rates, and workers' rights lie at the heart of the problem. These concepts involve issues that are close to home and whose solutions are often viewed as representing an unacceptable intrusion into a nation's political sovereignty.

National public procurement in the EC amount to about 15 percent of the EC's Gross Domestic Product or about \$600 billion U.S. dollars. The aim of Europe 1992 directives in this area is to make European industry more competitive while enabling governments to cut costs. Because of deeply ingrained national buying policies in the 12 EC countries, there has been little evidence of cross-border competition for these contracts. Public authorities generally buy their goods locally and without competition, even among domestic suppliers, to preserve jobs and protect investments, often at a much higher cost. By 1987, national governments awarded only about 2 percent of public contracts to firms outside the EC and over 75 percent of these contracts went to national champions. The new directive, yet to be approved by the European Council, contains a Buy European clause which would allow purchasing authorities to dismiss bids that did not contain 50 percent EC content; if they nevertheless allowed a

non-EC bid to compete, it would have to be at least 3 percent cheaper than the lowest EC bid. Progress will be slow and the situation is best summed up by one European analyst:

Although the Commission may well obtain approval for most of what it has proposed by 1992, innumerable vested local and national interests are likely to fight to maintain a privileged position, depressed areas will look for special treatment, economic dislocation resulting from more open tendering will create political counterpressures, many purchasing authorities will try to ignore the EC rules...and the pursuit of legal remedies will be protracted.

Harmonization of taxes promises to be the Achilles heel of the Europe 1992 Program, which seeks to end divergence in the national multi-level indirect tax rates encompassing the value added tax (VAT) and excise taxes. Each of the EC member states has its own system of taxation, which requires some system of border control for enforcement and collection of taxes. Each country sets its own tax rate; therefore, overall rates vary substantially and similar goods are taxed differently in each country. For example, in January 1988, the standard VAT rate ranged from 12 percent in Spain and Luxembourg to 25 percent in Ireland. The EC's plan calls for a narrowing of the range of tax rates, with high-tax countries reducing their rates and low-tax countries charging higher rates. The real question for individual EC states is whether they are ready to cede a large portion of their fiscal sovereignty to the European Community in Brussels. It is a complex problem and finance ministers have postponed talks on a fraud-proof VAT system for the EC until

1996. Directives in this area must be adopted by unanimous voting in the European Council because of the obvious implications this legislation may have on a nation's stability and vital interest. Consequently, consensus building in this area will be slow.

Workers' Rights, another problem area, includes such concepts as free circulation of workers (who must be able to go where the work is) conditions of employment (health, safety, job security, working hours, etc.) and labor relations. This is the third area where progress has been slow. Countries with strong labor movements or institutionalized forms of labor relations, such as West Germany, oppose any plan that would allow a German company to avoid co-determination or worker participation (worker representation on the board of directors). The United Kingdom, on the other hand, has strongly opposed any compulsory worker participation scheme. Adopting these changes, let alone implementing them, will take time and will test the political will of each nation to its fullest extent.

Finally, the Single European Act (SEA) contained provisions calling for increased coordination of "economic and political aspects of security." This is significant because national defense industries and their goods were formally excluded from EC internal market regulations by Article 223 of the Treaty of Rome. The SEA opens the door for the European Community to play a greater role in the defense arena by increasing its influence in European security issues now that it has such authority. The EC has

wasted no time. Here are several examples: (1) Belgium Foreign Minister Mark Eyskens indicated the EC would seek to play a strong role in the 35-nation Conference on Security and Cooperation in Europe (CSCE) summit, scheduled to be held in late 1990. The EC is expected to present a coordinated EC political position on disarmament at the CSCE summit. (2) The EC caused a furor among U.S. defense companies when it proposed tariffs on defense parts and components shipped to EC member countries. This issue was resolved recently when EC Commission President Jacques Delors announced that tariffs were no longer being considered for implementation. The reversal was due in part to the intense pressure from U.S. officials including personal appeals from Defense Secretary Frank Carlucci. (3) On April 28, 1990, Western European leaders agreed to launch the European Community toward political union aimed at achieving common foreign and security policies by 1993. If successful, the European Community would be transformed into a political group with a role in Atlantic defense arrangements and an importance far surpassing the trade and monetary integration that until now has been its main objective.

These events indicate a willingness by the EC to assume a leadership role in security issues and could eventually lead to a shift in the European security dialogue from NATO to a more European framework. What this will mean to NATO rationale can only be speculated on at this time; however, the United States government and the defense community in particular should be prepared to deal with this possibility.

Business and Industry Lead the Way

Despite these problems, European industry is proceeding with its restructuring mostly because global economic conditions compel it to do so. However, the credibility of the Europe 1992 program is encouraging industry to move ahead in anticipation of the larger market. Globalization of the economy has brought intense competition to the commercial sector. Multiplicity of regulations, economic conditions and cultural preferences have resulted in protected national markets that have been stagnant economically compared to the United States and Pacific Rim nations. As a result, commercial European industries have lacked home markets of sufficient size to support the huge research and development investment and marketing costs necessary to compete with aggressive Japanese and American competitors in industries of the future.

For example, 11 European companies now battle for the \$8 billion European market for central office telephone exchanges, while there are only four competitors in the United States. The development costs for a new generation of switching equipment can easily exceed \$1 billion. Such massive expenditures simply cannot be recovered in small volume highly fragmented markets -- a problem exacerbated by conflicting national standards. Encouraged by Europe 1992 initiatives toward deregulation of the services industry, many European companies are beginning to form strategic

alliances, such as the joint venture between Italy's Italtel and AT&T of the USA, as a way of overcoming market fragmentation and building R&D scale economies.

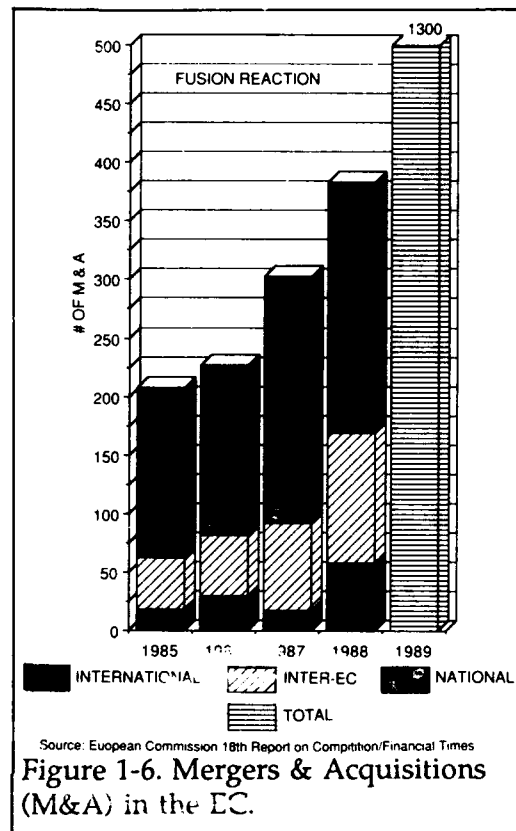
Consequently, the forces driving change and shaping Europe's commercial industrial sector are shifting from nationalistic considerations to more globally driven business or economic criteria. Structural adjustments are being made as if larger markets are a reality and companies are now forming strategic alliances that will generate the R&D investments necessary to develop technologies that can compete in the world market. It seems as though European companies are assuming that Europe 1992 will accomplish its goal; the race is on and corporate strategies are being formulated now in order to be competitively positioned and for the first-mover advantages available today. Mergers and acquisitions are being utilized by some companies in pursuing a strategy of expansion across Europe, while others are using this mechanism to consolidate strength in core local markets (defend home turf) before expanding. For example: Deutsche Bank, the largest in West Germany, acquired 97 percent of the Italian branches of Bank America to penetrate the Italian market, while the four main Spanish banks have merged or consolidated into two, to defend itself against foreign competition like the Deutsche Bank. Similar strategies are being implemented across all European industrial and economic sectors. Europe 1992 is inspiring the restructuring by creating a supportive business and economic environment.

Merger and Acquisition Reforms Fuel Change

One of the most significant contributions of the Europe 1992 program has been to subject merger and acquisition activity to European community antitrust regulation rather than myopic local national rules. This, coupled with significant relaxation of banking and financial services regulations, has allowed industry to reorganize to take maximum advantage of the larger market.

As Figure 1-6 indicates, European industry is being galvanized by the prospects of Europe 1992, with domestic or national consolidation obviously being the preferred initial reaction. Accompanying this wave of domestic consolidation has been an acceleration of cross-border mergers from fewer than 65 in 1985, to more than 170 in 1988.

At the time of this writing, the 1989 figures have yet to be categorized by the European Commission but preliminary reports indicate more than 1300 cross-border takeovers were made in 1989 involving EC companies. The unprecedented surge in the number of such deals represents the strategic bets European CEOs are placing on the evolution of a truly unified market. Many believe the point of no return has been reached. This sentiment is apparently shared by U.S.-based companies that accounted for more than 15 percent of these deals. The figures indicate that cross-border or intra-EC strategic alliances are being formed fast and deep and, although American firms have a history of investment in Europe, it would appear that U.S. commercial industry is trying to



position itself more solidly in the European market place before it's too late.

This strategy is expensive in terms of capital and management costs and, therefore, there will be significant political and economic pressures for these alliances to generate results which should mitigate national buying tendencies. This is at least what the EC is hoping will happen as open markets remain the key ingredient to creating a true, integrated, single European market.

It must be remembered through all this that progress so far can be attributed largely to a successful strategic interaction

of Europe's public sector (EC and national governments) and private sector (business and industry), resulting in Europe 1992 enjoying **credibility and high expectations** with the private sector. The European Commission's research on the economics of 1992 showed that the greater part of the potential gains from completing the internal market should come more from changes in the strategic behavior of the private sector than from the simple removal by the public sector of unnecessary trade barriers among the member states.

In order to trigger this behavior the essential requirement is that the public sector's plan of action (Europe 1992) be judged credible in the eyes of the private sector. A large measure of credibility was achieved with the signing of the Single European Act which provided a constitutional commitment to make the plan work by changing the EC decision-making process which has so far resulted in accelerated legislative performance. The private sector has, therefore, been conditioned to anticipate

1992, and individual firms have moved quickly to position themselves for the new market environment expected after 1992. The literal explosion of cross-border merger and acquisition activities in 1989 is a testimony to the expectations and credibility Europe 1992 has achieved in advance of the passing of many crucial Europe 1992 proposed directives.

This provides an interesting insight into how successful the EC and national governments will be in passing and implementing the remaining proposed directives. With the private sector already acting on the assumption that "1992 will happen," the public sector itself will have a much easier task in overcoming the usual resistances and in building the consensus necessary to implement market liberalization actions; in fact, they are fast becoming compelled to do so. The Europe 1992 program has taken on a life of its own and it would appear that the greater risks for U.S. industry and government alike lies with underestimating its momentum as international trade policy and corporate strategies are evaluated.

"My grandfather was local, my father was national, and I have to become European. It is no longer true that you can remain local and survive."

— Antoine Riboud, C.E.O. of B.S.N.

CHAPTER 2

Government Movements Reshaping The European Armaments Market

Introduction

As Western Europe races forward with its plans to integrate economies and open commercial markets, sister movements in the defense arena, inspired by concepts of the Europe 1992 program, are gathering momentum and marching toward similar changes in the European armaments market. The Independent European Program Group (IEPG), representing all NATO European nations except Iceland (Figure 2-1), is working on its version of Europe 1992 by chipping away at protectionist walls between Western European defense markets as it coordinates European defense research and development. Meanwhile, in an exercise of partial duplication, the NATO Conventional Armaments Planning System (CAPS) is working on harmonizing national military requirements with NATO force requirements and promoting NATO sponsored cooperative programs. Not to be left out, a rejuvenated Western European Union (WEU) is asserting itself as a unifying force with concerns about pan-European and transatlantic armaments

cooperation. In a process that some call "parallel integration," Europe 1992 and the IEPG are working toward a stronger, more united European defense acquisition

MEMBERS	NATO CAPS	IEPG	WEU
BELGIUM	X	X	X
DENMARK	X	X	-
FRANCE	X	X	X
GERMANY	X	X	X
GREECE	X	X	-
ICELAND	X	-	-
ITALY	X	X	X
LUXEMBOURG	X	X	X
NETHERLANDS	X	X	X
NORWAY	X	X	-
PORTUGAL	X	X	X
SPAIN	X	X	X
TURKEY	X	X	-
UNITED KINGDOM	X	X	X
	14	13	9

Figure 2-1. European Co-Movements Organizational Matrix.

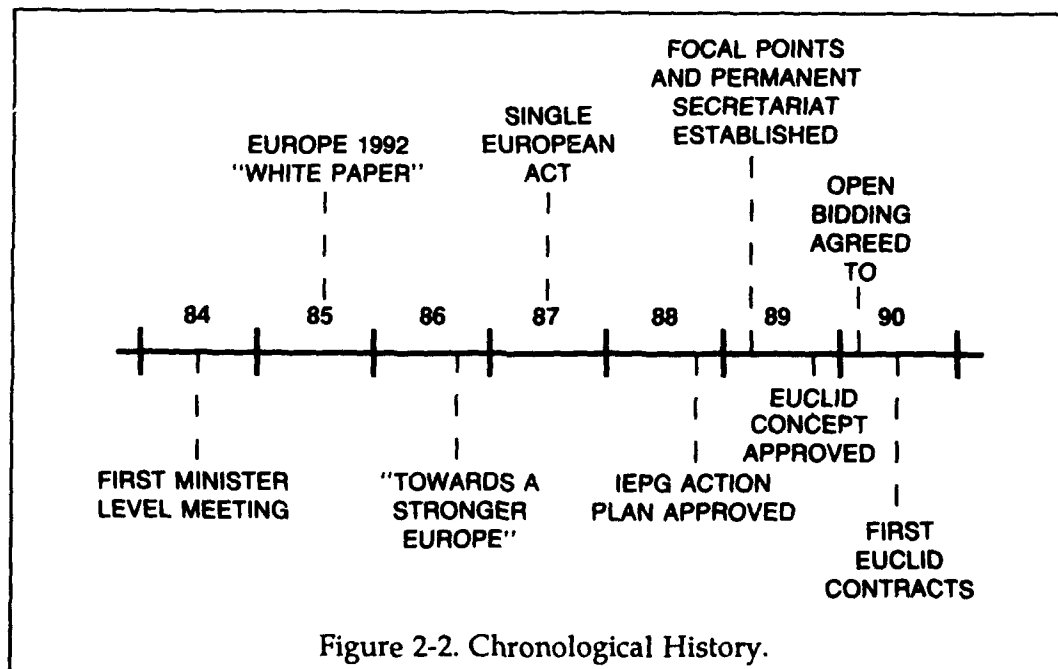
community with the ability to deal with the U.S. defense acquisition community on a more equal footing. The changes these organizations initiate will impact future transatlantic armaments cooperation, the balance of defense trade between Europe and the United States, and the way the United States deals with and thinks of the European acquisition community.

The Independent European Program Group --Forum for Cooperation and Unity

Established in 1976, The Independent European Program Group was formed to provide a forum for French involvement in European armaments cooperation (see Figure 2-2 for a chronological history). In 1984, after seeing little progress from the IEPG, the British and Dutch elevated the status and authority of the Group by pushing for

periodic meetings at the defense minister level. For those working in the European defense acquisition community, the IEPG has since become an influential organization. A year after the Group began meeting at the defense minister level, the now-famous Europe 1992 white paper started the European Community toward open and united commercial markets. Then, in 1986, the IEPG caught the Europe 1992 fever through its landmark report, *Towards a Stronger Europe*, that called for more open defense markets and coordinated military research and development.

The IEPG recognizes there can be no truly integrated and open Western European defense market until fragmented and protected national defense markets of Western Europe are combined. Much of their motivation comes from the Western World's structural disarmament phenomena caused by defense budgets that



cannot possibly keep up with the increasing costs of high technology weapons. Another motivating factor is their incentive to create an economic environment where European defense industries can improve their competitiveness to a level that is more on a par with the U.S. defense industry. In 1988, motivated by the twin specters of increasing costs and declining competitiveness, the IEPG published an Action Plan to begin their drive toward an integrated European armaments market.

Step-by-Step

Recognizing strong protectionist sentiments and national sovereignty issues associated with national defense markets, the IEPG Action Plan takes a systematic

approach toward integrating Europe's defense markets (see Appendix E for an outline of the IEPG Action Plan). To pursue their step-by-step concept, the IEPG formed an organization with three panels (Figure 2-3) that report progress to a meeting of the participating nations' National Armaments Directors every six months. The Armaments Directors, in turn, report to a meeting of the participants' defense ministers every eight months. The Chairmanship of the IEPG normally rotates alphabetically among the nations every two years, with the British currently holding the Chair. At the end of 1990, the Chair will pass to Belgium. In 1989, the IEPG took an important step forward and formed a permanent administrative secretariat in Lisbon to perform coordination and provide administrative assistance to the chair nation.

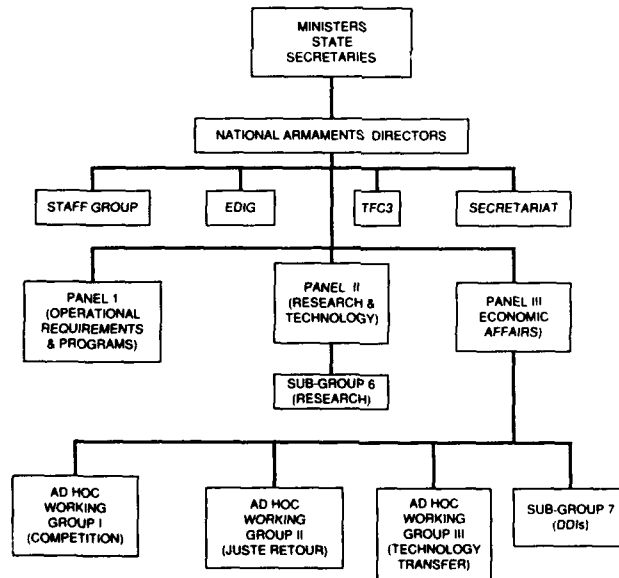


Figure 2-3. Structure of the IEPG.

The European Defense Industries Group Sonobuoys to Cargo Aircraft

To help support the IEPG, European defense firms have formed an industrial organization called the European Defense Industries Group (EDIG). Made up of members of the NATO Industrial Advisory Group (the industrial counterpart to NATO's Conference of National Armaments Directors), the EDIG organization closely mirrors the structure of the IEPG. Demonstrating their strong support and belief in the IEPG's basic goals, the EDIG has established a permanent meeting location in Brussels where it meets five times a year compared to two times a year for the IEPG National Armaments Directors. The EDIG has consistently provided influence and guidance in areas that could help improve the European defense industry. The influential report of *Towards a Stronger Europe*, for example, was largely an effort from members of the EDIG.

If spiraling weapon costs and European defense industry competitiveness are to be improved, a crucial element will be to increase European defense industries' economies-of-scale. Such duplications as those shown in Figure 2-4 have led to inefficiencies and reduced economies-of-scale which, in turn, have lead to higher unit costs for European weapons than for U.S. weapons.

Lord Carrington, former Secretary General of NATO, saw the problem clearly when he said:

We simply cannot afford to perpetuate a system which has resulted in three main battle tanks - four if you count the Americans, being lined up to fight the same battle in the same place on the same day and not even being able to use the same ammunition.

	3000 combat A/C	22 types
	12000 tanks	12 types
Anti-tank missiles	11 Companies	7 Countries
Surface-to-Air missiles	18 Companies	7 Countries
Air-to-Air missiles	8 Companies	6 Countries
Air-to-Ground missiles	16 Companies	7 Countries
Ship-to-Ship missiles	10 Companies	7 Countries

Source: DOD

Figure 2-4. Fielded European Defense Equipment.

The mission of IEPG Panel One is to attack this problem by harmonizing national requirements and creating cooperative programs among the nations. The Panel One method centers around an Equipment Replacement Schedule (ERS) which contains a list of a nation's development programs established to replace current military equipment. Panel One examines the combined ERSs and works with the nations on harmonizing requirements for the programs, attempting to match two or more national programs in time frames that would support cooperative programs. Currently, Panel One is monitoring more than 20 programs ranging from the European Future Large Aircraft to sonobuoy programs (see Appendix D for a list of programs Panel One is monitoring).

Coordinating Research

Because national duplication of programs and weapons systems also produces duplication and inefficiencies in research, Panel Two is working toward coordinating European defense research and creating technology transfer opportunities among member nations to help improve the overall level of European defense technology. Encouraged by the French, Panel Two formed the European Cooperation for the Long-Term in Defense (EUCLID) research program. Taking a cue from other research programs, Panel Two patterned EUCLID after Europe's 19-nation EUREKA research program. The EUCLID program, to which IEPG nations have pledged a total of \$135.5 million, will be accomplished by each IEPG member nation awarding technology enhancing research contracts within its borders.

To reduce duplication of research and improve European defense technology in the most strategic and efficient manner, Panel Two is coordinating the nations' EUCLID research projects with an agreed-upon list of critical, prioritized technologies called Common European Priority Areas (CEPAs). A list of EUCLID's 11 CEPAs compared to some of the critical technologies from DOD's 15 Mar 1990 Critical Technologies Plan indicates substantial agreement between DOD and the IEPG on which defense technologies are important for the future (See Figure 2-5).

One impressive feature of the EUCLID program is that the IEPG is working toward sharing results of the research contracts among the member nations. At IEPG urging, defense firms belonging to the European Defense Industrial Group have agreed to perform basic research in a similar coordinated fashion using their own funds. The EDIG, however, has not fully agreed to the IEPG concept of technology sharing, expressing some concern about losing proprietary background information. Nevertheless, Panel Two accomplishments in coordinating European defense research should improve that Continent's defense technology base, and has caused one report to call EUCLID a "major milestone in the development of the IEPG and a more efficient and competitive European defense capability."

Tearing Down the Walls

While Panel Two is working toward improved technology, Panel Three, responsible for economic affairs, is taking a

<u>CEPAs</u>	<u>DOD CRITICAL TECHNOLOGIES</u>
SILICON MICROELECTRONICS	SEMICONDUCTOR MATERIALS AND MICROELECTRONIC CIRCUITS
COMPOSITE STRUCTURES	COMPOSITE MATERIALS
ELECTRIC GUN	HYPERVELOCITY PROJECTILES
SIGNATURE MANIPULATION	SIGNATURE CONTROL
ARTIFICIAL INTELLIGENCE	MACHINE INTELLIGENCE AND ROBOTICS
OPTO-ELECTRONIC DEVICES	PHOTONICS
MODERN RADAR TECHNOLOGY (AIRBORNE RADARS)	SENSITIVE RADARS
MODULAR AVIONICS	PARALLEL COMPUTER ARCHITECTURE (INCLUDES INTEGRATION OF SPECIAL PURPOSE COMPONENTS INTO GENERAL PURPOSE SYSTEMS)
SATELLITE SURVEILLANCE TECHNOLOGIES (INCLUDING VERIFICATION ASPECTS)	PASSIVE SENSORS, PHOTONICS, AND SENSITIVE RADARS
UNDERWATER ACOUSTICS	PASSIVE SENSORS
HUMAN FACTORS (INCLUDING TECHNOLOGY FOR TRAINING AND SIMULATORS)	SIMULATION AND MODELING (INCLUDES TRAINING SIMULATORS)

Figure 2-5. CEPAs And DOD Critical Technologies.

three-pronged approach toward opening European defense markets. First, single points of contact, called Focal Points, have been established within each nation to facilitate entry of member nations' firms into European defense markets. These Focal Points provide information on national acquisition procedures and are an important contact point for foreign firms wishing to do business in the Focal Point's nation.

The second effort at opening defense markets is directed toward advertising upcoming defense business for each nation. The IEPG has pushed through a concept whereby each nation will publish a periodical similar to the U.S. *Commerce Business Daily*, which advertises future U.S. defense business. One difference between the IEPG approach and the U.S. *Commerce Business Daily* is the fiscal threshold of the

advertised defense business. The IEPG concept involves defense programs that are in excess of 1.1 million European Currency Units (approximately \$1.4 million) while the U.S. *Commerce Business Daily* advertises any defense business over \$25,000. At a meeting in February 1990 in Gleneagles, Scotland, 9 of the 13 IEPG nations announced they are now publishing periodicals similar to the British *MOD Contracts Bulletin*. Not surprisingly, this concept has proved to be popular among European defense firms. For example, 244 United Kingdom companies subscribe to the French bulletin while 128 French firms subscribe to the United Kingdom document.

At Gleneagles, a third thrust toward opening markets was established when the IEPG defense ministers reaffirmed their commitment to the Action Plan and agreed to open national bidding procedures among member nations' defense markets. This concept will allow foreign defense contractors to bid on defense contracts in all participating nations' markets. The process by which the nations pursue this open market concept will be in a policy document containing principles and procedures for operating an open European defense market. The writing of this document, assigned to senior procurement officials, will, no doubt, be difficult because of the issues it must address.

Juste Retour

The policy document is expected to contain approaches to *Juste Retour* (just returns) and methods for aiding the Developing Defense Industries (DDIs) of Portugal, Turkey and Greece--two

controversial and problematic issues originally introduced in the IEPG Action Plan. *Juste Retour* is explained in the IEPG Action Plan general remarks section: "Because of very important national interests, IEPG countries will only be prepared to admit border crossing competition if they are sure to get an equitable and fair return back in a suitable time corresponding to their vital interests and their possibilities. Therefore some kind of *Juste Retour* has to be arranged." *Juste Retour* is basically a managed trade concept whereby each nation receives defense business somewhat equal to the amount of defense business that it gives to other nations.

Panel Three, overseer of *Juste Retour*, will be responsible for developing a system to monitor cross border defense sales to determine when the concept should be exercised. *Juste Retour* implies that less competitive nations' industries could receive preferential treatment in a to-be-defined manner. The EDIG particularly opposes *Juste Retour* and points out that such an approach runs counter to Europe 1992's basic concept of improving European economies through the benefits of open competition. Companies in the EDIG are concerned that *Juste Retour* may be applied through government defense contracts, thereby reducing efficiencies to be gained by allowing prime contractors to choose their subcontractors through a competitive process. Members of the IEPG are quick to point out that they recognize *Juste Retour* is detrimental to competition, but that it is necessary for a period of time, say three years, to help improve competitiveness of the DDIs. Others counter with the argument that helping the DDIs through *Juste Retour* could involve an

increase in European defense industry capacity at a time when the industry has too much capacity and defense budgets are declining. Currently, the IEPG plan for applying *Juste Retour* is not clear. What is clear, however, is that applying *Juste Retour* without reducing the benefits of competition or increasing capacity will be difficult to achieve through practical and credible operating policies and procedures.

Transparency Concerns

Another difficult issue that must be covered by the open bidding policy document is the set of source selection procedures and criteria that nations will use to choose winners of defense contracts. The transparency and openness of these procedures is a concern of U.S. and Canadian observers. Many worry that *Juste Retour*, combined with a growing preference for European-only weapon systems, will create a European defense market with opaque procedures hiding favoritism toward European firms. This would, in effect, lock out U.S. and Canadian firms that have been involved in the European armaments markets for years. The office of the chairman of the IEPG NAD assembly stresses that the IEPG has no desire to create procedures that could be construed as protectionist toward the North American NATO nations. Previously, the IEPG agreed upon a broadly defined set of criteria that nations should use to select sources for defense business, but it remains to be seen how the upcoming policy document will resolve this issue of transparency of source selection procedures and criteria.

Currently, there is no formal interface between the United States and the

IEPG that would allow the former to express concerns regarding such issues. When Caspar Weinberger was Secretary of Defense, he twice offered to establish a U.S./IEPG Memorandum of Understanding to facilitate cooperation in armaments between the two communities. Perhaps it is time for the United States to renew such an offer. Participation or observation by a dominant United States would neither be welcomed nor appropriate and could divert IEPG energy and attention away from their goals. However, some sort of established relationship could go far toward alleviating U.S. concerns about *Juste Retour*, transparency, and IEPG exclusivity. One idea worth pursuing is cooperation between the United States and the IEPG on the EUCLID research program. This concept, proposed by Mr. John Betti, Under Secretary of Defense for Acquisition, at the April 1990 NATO Conference of National Armaments Directors, was tentatively accepted by the IEPG nations. If pursued, it holds promise for improving U.S. and IEPG relations.

Strengths and Weaknesses

Lack of formality within the IEPG contributes to yet another problem the IEPG must deal with. Unlike NATO and the Western European Union, the IEPG is held together by the common motives and political will of the member nations rather than by a formal treaty. Sir Peter Levene, current chairman of the NAD group, said in a recent *Armed Forces Journal International* interview, "As much as the IEPG is becoming an effective organization, it's a voluntary association of sovereign nations." Therein lies both a strength and a weakness of the IEPG. Participants have motives strong enough to work toward a set of

common goals, but the organization is not a treaty-empowered body that can push aside national sovereignty concerns and legally force nations to open their defense markets. Nevertheless, fueled by economic pressures and prodded by the British, who strongly believe in open markets and competition, the IEPG has made substantial progress.

There may soon be additional pressures to push the IEPG even further toward open defense markets. As we shall see in the next chapter, the restructuring of the European defense industry into national defense firms that are near-monopolies can be expected to help, if not force, the IEPG into continuing their trend of progress toward open defense markets.

The Bumble Bee

Can the IEPG establish a truly open European defense market in the face of such issues as national sovereignty, *Juste Retour*, and transparency? In 1976, skeptics did not believe the IEPG would make any progress among nations who had always had separate defense industries and protected markets. Times have changed, however, and with the opening of European Community borders and restructuring of European industries, there is a strong regional thrust within Western Europe toward economic unification. Perhaps the IEPG trend of progress, combined with this new sense of unification and growing pressures from a restructured European defense industry, will be enough to form a true European armaments market.

Somehow, the IEPG has been like the bumble bee; aerodynamicists say the bumble bee should never be able to fly with such small wings, but nobody has explained that to the bumble bee and it flies anyway. The IEPG, with no binding treaty and faced with difficult issues, has not been told that it cannot make progress--so, it does anyway.

NATO CAPS--Forum for Cooperation

Lord Carrington, former Secretary General of NATO, initiated the NATO Conventional Armaments Planning System (CAPS) in 1987 because of his concern for the lack of standardization and interoperability of NATO weapon systems. To help resolve these problems, the CAPS program was established to coordinate national military research and development programs with future NATO military force requirements and thereby improve interoperability and standardization, decrease duplication, increase production economies-of-scale, and promote cooperative NATO programs.

The CAPS program comes under the NATO Conference of National Armaments Directors (CNAD) which is composed of the same members as the IEPG National Armaments Directors (NAD) with the addition of the U.S. and Canadian armaments directors. It is the first formal and systematic NATO program directed toward relating long-range NATO military force goals to national armaments research and development and acquisition planning.

As such, it has tremendous potential to impact NATO nations' acquisition communities and generate cooperative programs. One impressive attribute of the CAPS program is its potential to impact nations' armaments planning systems early in the weapons development cycle.

The procedure that NATO CAPS follows is remarkably similar to the procedure IEPG Panel One uses to harmonize European national military requirements and promote European cooperative programs. The NATO CAPS program is set up to produce a long-range Armaments Planning Questionnaire (similar to the IEPG Equipment Replacement Schedules) from each NATO nation. Responses to the questionnaires indicate national development programs that could be used to meet NATO force goals. As France does not have forces positioned under NATO's integrated military command, France submits the programs she is pursuing against her own national military requirements.

After receiving the questionnaires, the NATO international staff combines them into a Preliminary Analysis Document (PAD) for submittal to the NATO Conventional Armaments Review Committee (NCARC), established in 1988 specifically to support NATO CAPS. It is in the NCARC where the important and difficult process of coordinating nations' programs occurs. Results of this coordination, including recommendations for reducing duplication, harmonizing national programs with NATO goals, and recommendations for cooperative programs, are contained in a Conventional Armaments Plan (CAP) presented to the CNAD for approval, if acceptable.

In 1988, all NATO nations agreed to a two-year trial implementation of this process. In the summer of 1989, the CNAD, recognizing the potential of the CAPS program, agreed on a further two-year extension to allow the system time to work out problems.

Conflicts of Interest

Content of the first Conventional Armaments Plan was the first major problem. Mr. John A. Betti, Under Secretary of Defense for Acquisition and U.S. representative to the CNAD, recognized the merit of the CAPS process but felt that the recommendations produced by the initial trial cycle lacked substance and did not address specific programs.

Another problem facing the NATO CAPS program is the near duplication of its efforts to those of IEPG Panel One. Both have similar goals, motives and methods, except that NATO CAPS involves Canada and the United States, while IEPG Panel One does not. This duplication could easily create a conflict of interests among NATO European nations and provides potential for weakening the NATO CAPS program.

Recently, a RAND Corporation study, *NATO and 1992: Defense Acquisition and Free Markets*, suggested that opening defense markets is an IEPG area in which NATO should become more involved. Noting the duplication of the membership of the IEPG and the CNAD and benefits associated with open defense markets between Europe and North America, the study recommended that, "Any free-bidding system should operate NATO-wide."

Renewed Efforts Required

Unfortunately, there is no formal connection or coordination between the two groups to address such issues. Inputting IEPG Panel One results into the NATO Conventional Armaments Review Committee process is one alternative to establishing coordination between the two bodies. Another concept would be for NATO CAPS to work in conjunction with the IEPG in opening defense markets NATO-wide. Whatever the method, NATO should strive to ensure that the existence of the two programs does not weaken the NATO CAPS effort. Besides the tremendous economic and military benefits possible with NATO CAPS, the program has the potential to strengthen the Alliance at a time when NATO's purpose and usefulness are being questioned in some circles.

As a minimum, the United States should do its part to help strengthen the program by ensuring that the U.S. Programming, Planning, and Budgeting System (PPBS) and Defense Acquisition Board (DAB) processes fully consider NATO CAPS. That is not happening at this time (see Chapter 4 regarding transatlantic programs and lack of consideration for NATO CAPS in DOD policies). The United States should also pursue more open defense markets within the Alliance, possibly using as a model the recently formed North American Defense Industrial Base (NADIB) concept that allows defense manufacturers in Canada and the United States to be treated equally for procurement purposes. European skepticism toward such a move would be high considering how defense trade between the United States and Europe has

been heavily skewed in the United States favor for the last 40 years. Such a move could be interpreted by Europeans as an attempt to continue that imbalance of trade and prevent them from improving the competitiveness of their own defense industries. Nevertheless, such an approach, if pursued through a NATO forum (such as NATO CAPS or the CNAD) in a fair and equal manner, could help counter U.S. concerns about IEPG exclusivity while discouraging European armaments protectionism and promoting the benefits of open defense markets NATO-wide. Assurance that open European defense markets would be accompanied by an equally open U.S. defense market would be essential if the United States pursues such an approach.

Western European Union -- Forum for Unification

The Western European Union (WEU), formed from the 1948 Brussels Treaty, was the forerunner to NATO. The WEU lay dormant for years after NATO came into existence, but came to life in 1984 when a move to include defense matters in the European Community failed. Since then, it has been a unifying force among treaty signatories for military issues outside of NATO's area of defense. For example, during the 1987 Persian Gulf war, the WEU coordinated Western European contributions such as Italian minesweepers. The signatories also discuss and prepare European positions on bilateral relations between the United States and the Soviet Union. During the Reykjavik summit between President Reagan and Soviet Premier Gorbachev, U.S. positions were passed to the U.K. Prime Minister Margaret

Thatcher who immediately went into a WEU conference to determine the Western European position. Another area in which the WEU is involved is military collaboration between France and the other WEU nations. Since France withdrew her military forces from NATO in 1966, the WEU provides a convenient forum for France and the signatory nations to coordinate military force plans. Recently, in another move toward European unity, the WEU began discussing the possibility of an all-European armed force to replace United States and Soviet forces in a united Germany.

Originally, the WEU included Belgium, the United Kingdom, France, Luxembourg, and the Netherlands. In 1954, the Federal Republic of Germany and Italy joined. Spain and Portugal became members in 1988, bringing the WEU up to its current membership of nine nations (Figure 2-1). One unusual but positive feature of the WEU is that when its council meets, Ministers of Defense and Foreign Affairs Ministers sit side by side, rather than in separate meetings as in NATO.

As evidenced in their October 1987 *Platform on European Security Interests*, the WEU considers itself "...an important contribution to the broader process of European unification." With such an all-encompassing mandate, it's not surprising that the WEU sees itself becoming more involved in weapons procurement. In March 1990, at the Defense Systems Management College, Ft. Belvoir, Virginia, Dr. Willem van Eekelen, Director General of the WEU, said the WEU has an obligation to increase cooperation in weapons procurement. He sees the WEU role in this area dealing mostly in the political arena while the IEPG deals with practical aspects of European armaments

cooperation. Dr. van Eekelen closed his speech with three actions necessary for maintaining Western European security: creation of a framework for economic aid for Eastern European nations; encouragement of democratization in Eastern European nations; and maintaining an alliance with North America. He noted that to maintain the European alliance with North America, "...more cooperation than ever will be required in arms procurement."

What role the Western European Union eventually plays in weapons procurement and armaments cooperation remains to be seen. It's possible they could be a catalyst for new efforts in armaments collaboration. Others see the WEU and the IEPG combining into a defense related arm of the European Community as the European Community slowly becomes more involved in defense matters. Whatever their future course, the Western European Union has already contributed to the move toward European unification.

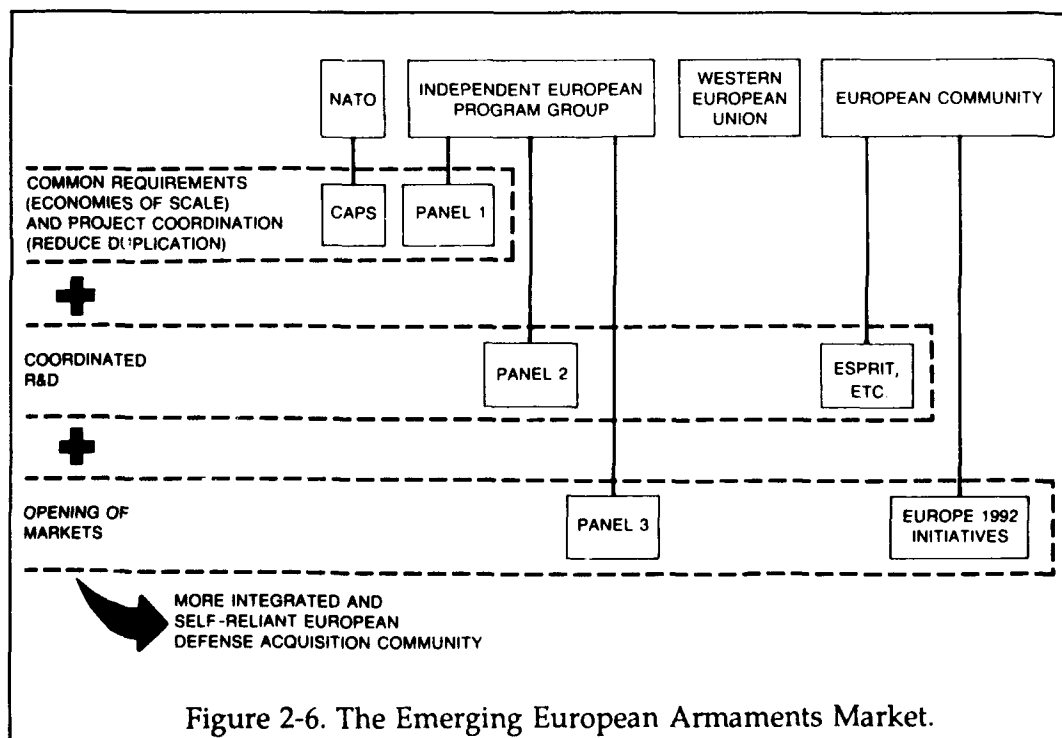
A Stronger, More United European Acquisition Community

These parallel moves toward European unity will create strong impacts in European and transatlantic armaments collaboration. Whether designed to an overall plan or not, government co-movements are rebuilding the demand side of the European armaments market in a way that will create a more efficient and self-reliant European acquisition community. The NATO CAPS and IEPG Panel One are working toward reducing duplication and increasing Europe's economies of scale through common requirements and cooperative programs; IEPG Panel Two and European Community

research programs are improving the European defense technology base; and IEPG Panel Three and the European Community's Europe 1992 initiatives are moving European nations toward a more open European armaments market. The result should be a stronger, more united European acquisition community capable of dealing with the U.S. acquisition community on a more equal basis (Figure 2-6).

At a time when the United States is concerned with a Europe that seems to be

going more and more in its own direction, such a stronger, more self-reliant European acquisition community could well result in what the Defense Policy Advisory Committee on Trade calls "polarized U.S. and European acquisition communities." Such trends behoove the United States to support a closer relationship with the IEPG, a stronger, more productive NATO CAPS program, and the establishment of a NATO-wide defense market.



"The American eagle and the Asian dragon are about to meet the European wolf pack."

— John F. Magee, Chairman, Arthur D. Little

CHAPTER 3

Europe's Defense Industry Restructures: U.S. Counterparts Respond

Introduction

Currently, Europe's defense industry is going through its most comprehensive restructuring since the end of World War II. A more "Europeanized" and competitive defense industry is emerging and invoking reactions from government and industry counterparts in the United States. The U.S. defense industry corporate strategies as well as transatlantic trade policies may be significantly influenced as a result.

Global economic trends, coupled with declining defense budgets and escalating defense equipment costs have triggered dramatic defense industry restructuring in Europe and to a lesser extent in the United States. Although survival is the motivation on both sides of the Atlantic, a greater sense of urgency exists on the European side principally because their fragmented markets and significantly smaller defense budgets threaten their competitiveness in a shrinking world market. The Europe 1992 program has significantly contributed to

the acceleration of this restructuring process.

Joseph L. Bower's book, *When Markets Quake*, provides an appropriate framework for discussing the defense industry restructuring now occurring in Europe. The restructuring process can be put into three observable phases -- preparation, concentration or consolidation, and rationalization. **Preparation** is where companies have the difficult tasks of reorganization, people changes and development of new corporate strategies. **Consolidation** is a key to balancing capacity with demand by reducing the number of competitors and reducing the costs of excess competition. **Rationalization** occurs once individual players with large blocks of capacity under their control, in excess of the market need, carry out optimization of manufacturing programs, including closing less-competitive units. Using this framework, this chapter examines the restructuring occurring in the European defense industry and reactions from the U.S. defense industry.

European Defense Industry Changes

The Restructuring of the European Defense Industry

Historically, European countries have attempted to maintain their own defense industrial capability which has led to fragmented defense industries and markets along national lines, giving rise to inefficiency, overcapacity and duplication. Declining defense budgets and increasing weapon systems complexity and development costs make it impossible for individual nations and their defense firms to go it alone. This reality, and its implications, are well understood by European industry and government. The situation has demanded a new level of adaptability and flexibility from the defense sector long before Europe 1992 was initiated by the EC. Recent events in Eastern Europe and the Soviet Union have eroded, and can be expected to continue to erode, defense budgets and provide further motivation for European governments and industry to consolidate their approach to arms development and procurement.

The Trend toward Industry Consolidation

Europe's defense industry is in the consolidation phase of its restructuring. Successful world-class performance by arms producers has been characterized by companies which possess critical mass and total systems capability. Together they enable a company to generate economies-of-scale and resources necessary to establish and maintain a leading-edge technology base. European arms firms

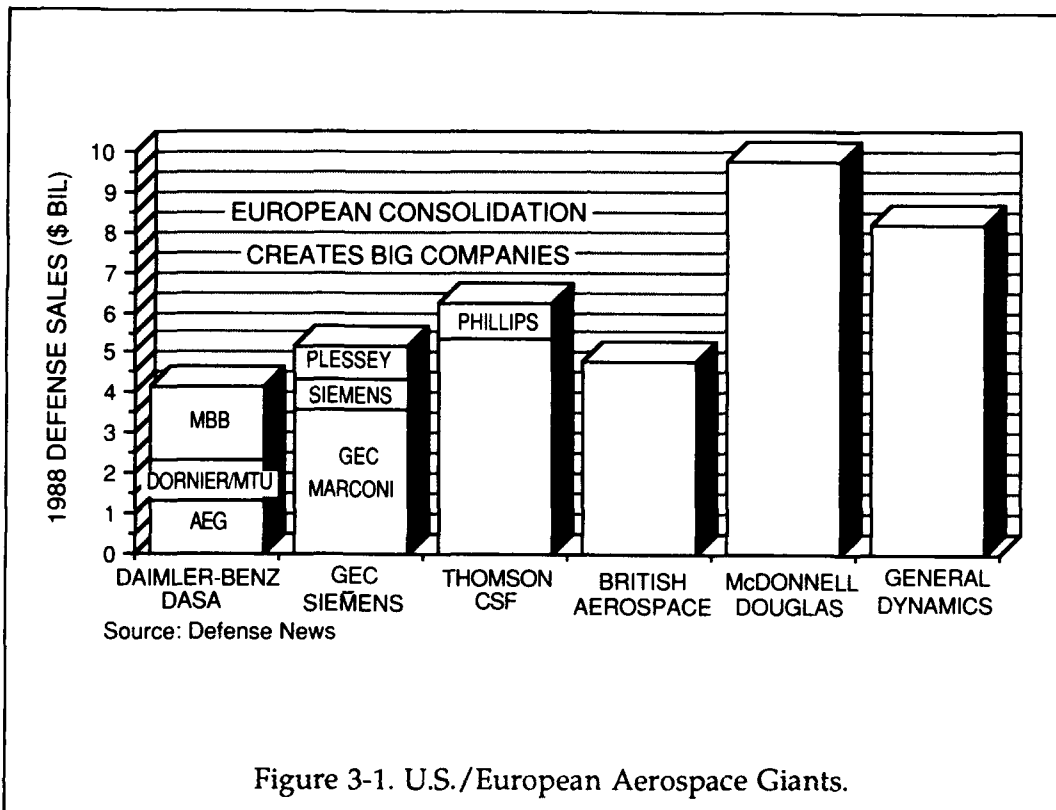
have been concentrated along national lines and protected by their respective governments which has minimized competition, innovation and subsequent growth. This has prevented the development of a true common European arms market and the resultant economies-of-scale required to develop and field technologically superior arms for the international market. Therefore, the massive industry-wide consolidation occurring today is a logical development for companies wanting to stay in the business. Consolidation is also being supported by European governments because they wish to continue to field a credible defense capability.

Mergers and acquisitions are the mechanisms for consolidation and are being utilized as a strategy to achieve critical mass in a company's core business and also as a means of diversification into other military and civilian product applications. The trend is toward fewer but larger defense firms that begin to approach the size of U.S. aerospace leaders (See Figure 3-1).

Initial strategies have concentrated on national consolidation but, as discussed later, evidence exists that European cross-border and transatlantic defense alliances are being formed as well.

National Consolidation -- Company Level

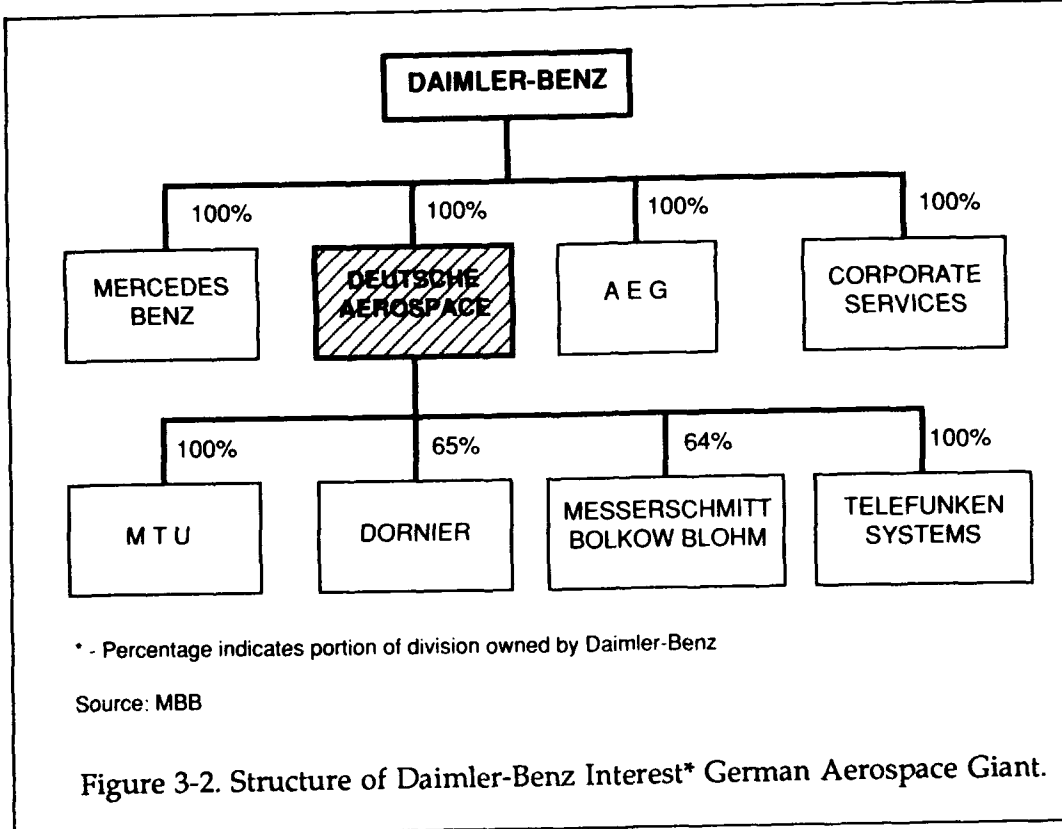
Consolidation of defense companies is occurring rapidly through mergers and acquisitions, mostly at the national level. Daimler-Benz of Germany (See Figure 3-2) established its Deutsche



Aerospace group and consolidated their position as Germany's leading aerospace giant and powerful arms conglomerate, ranging from armor to aero-engines to helicopters, by acquiring Germany's leading aerospace firm, Dornier and Messerschmitt Boelkow Blohm (MBB).

The partial acquisition of Plessey Electronics by Britain's GEC will add approximately 30-40 percent to its naval and avionics interest. British Aerospace's acquisition of Royal Ordnance and merger of the flight electronics businesses of the French state-owned groups of Thomson-CSF and Aerospatiale are other examples of company-level consolidation occurring within a nation. European firms

interviewed felt changing requirements and declining defense budgets would delay major platform replacements in the future and buyers would be focusing instead on extending platform life cycles through electronic equipment upgrades and modernizations. This has forced many companies to consider acquisition of this functional capability leading to a significant restructuring of the defense electronics industry. This strategy was further justified because they felt the electronics defense sector would continue to enjoy economic growth in areas such as command, control, communications and intelligence (C³I), electronic arms reduction verification and electronic warfare, despite declining defense budgets.



Strategies of European defense firms also include an element of diversification as a hedge against declining defense budgets. Many are seeking to become less dependent on defense by diversifying into other commercial interests. For example, Krauss-Maffei, the German tank maker (Leopard I/II) is significantly expanding its commercial interest through acquisition of firms specializing in process and transportation technology. British Aerospace's acquisition of Rover is another example of companies expanding their production and market base into the commercial sector.

Cross-Border Consolidation -- Company-to-Company

Consolidation of defense companies at the national level has strengthened positions in domestic markets for companies like GEC and British Aerospace in Britain, Siemens and Daimler-Benz in Germany and Thomson CSF in France. By using their stronger domestic base as a bargaining chip, these companies have been able to forge cross-border (inter-EC and transatlantic) strategic alliances with other defense

companies that have similarly achieved commanding positions in their respective home markets. Figure 3-3 is a sample of national and cross-border alliances formed in the 1988/89 time frame. Positioning for access to other country's markets in the opening European defense markets and the need to share the substantial financial risks associated with program research and development are driving these long-term strategic alliances.

Cross-Border Consolidation-- Inter-European Defense Consortia

The consolidation process has taken on a life of its own and shows no sign of stopping at the national company-to-company level. A European-wide approach at both the government and corporate levels is gaining momentum.

<u>COUNTRY</u>	<u>MARKET</u>	<u>ALLIANCE</u>
<u>UNITED KINGDOM</u>		
GEC/FERRANTI/PLESSEY	EFA RADAR	ACQUISITION
ASTRA/PRB (BLG)	MUNITIONS	ACQUISITION
<u>FEDERAL REP GERMANY</u>		
SIEMENS/PLESSEY(UK-60%)	RADAR/DEF SYS	ACQUISITION
DAIMLER-BENZ/MBB	AEROSPACE	ACQUISITION
SIEMENS/BENDIX(U.S.)	ELECTRONICS	ACQUISITION
DAIMLER-B/AEROSPATIALE(FR)	NH-90 HELO	JOINT VENTURE
<u>FRANCE</u>		
MATRA/GEC MARCONI(UK)	SPACE SYSTEMS	JOINT CO (51/49)
MATRA/FAIRCHILD(U.S.)	DEF SPACE/ELEX	ACQUISITION
MATRA/MBB(FRG)	RECON DRONES	JOINT COMPANY
MATRA/BGT(FRG)	MISSILES SYS	ACQUISITION (20%)
THOMSON/FERRANTI (PENDING)	SONAR DIV	ACQUISITION
THOMSON/PHILLIPS HSA(ND)	RADAR/FCS	ACQUISITION
THOMSON/AEROSPATIALE	FLIGHT ELEX	JOINT VENTURE
THOMSON/BRITISH AEROSPACE(UK)	MISSILES	JOINT VENTURE

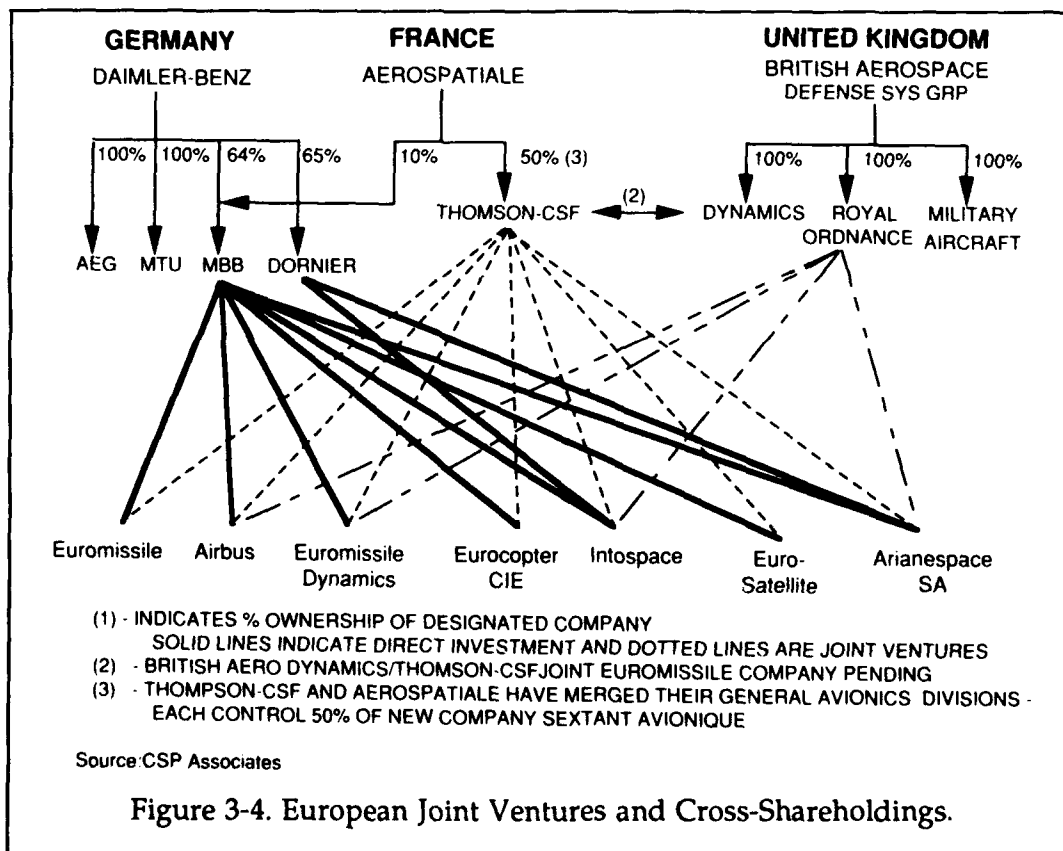
Source: *Financial Times/Wall Street Journal/Janes Defense Jun 88-Jan 90*

Figure 3-3. European Defense Industry Strategic Alliances - 1988/89.

Spiraling research and development costs and declining defense budgets are key factors to current rethinking in the industry. European defense contractors have particular strengths in areas such as radar, infrared, and optical/image processing systems. However, their ability to keep ahead or even keep up with international competitors is affected by low-volume production. Up to now, the response to the problem posed by high investment costs on the one hand and the relative smallness of individual national markets on the other, has been cooperative ventures such as the much publicized consortia for the European Fighter Aircraft

(EFA) being procured by Germany, Britain, Spain, and Italy. Figure 3-4 is an illustration of seven such cooperative ventures or consortia being participated in by companies from three countries.

These cooperative ventures are significantly enhanced through intercompany cross-shareholding exchanges and portend the establishment of European specialized industry groups and a greater concentration of industry into international consortia. Britain's GEC-Marconi and France's Matra believe this is the way forward. In 1987, after French-owned Matra was privatized,



Britain's GEC and Germany's Daimler-Benz acquired 5 percent each of Matra stock. Matra then formed a joint company (See Figure 3-5) with GEC-Marconi, called Matra Marconi Space which combined each company's space systems divisions. Matra also intends to exchange additional shares with the defense groups at Daimler-Benz's Deutsche Aerospace division and GEC-Plessey. Matra believes that, if pursued effectively, this system of resulting collaboration in the defense and space fields would become the core of specialized industry groups capable of attracting additional partners. These long-term European industry groups and consortia will enable Europe to retain the capability to design, manage and lead complex long-term development and production programs.

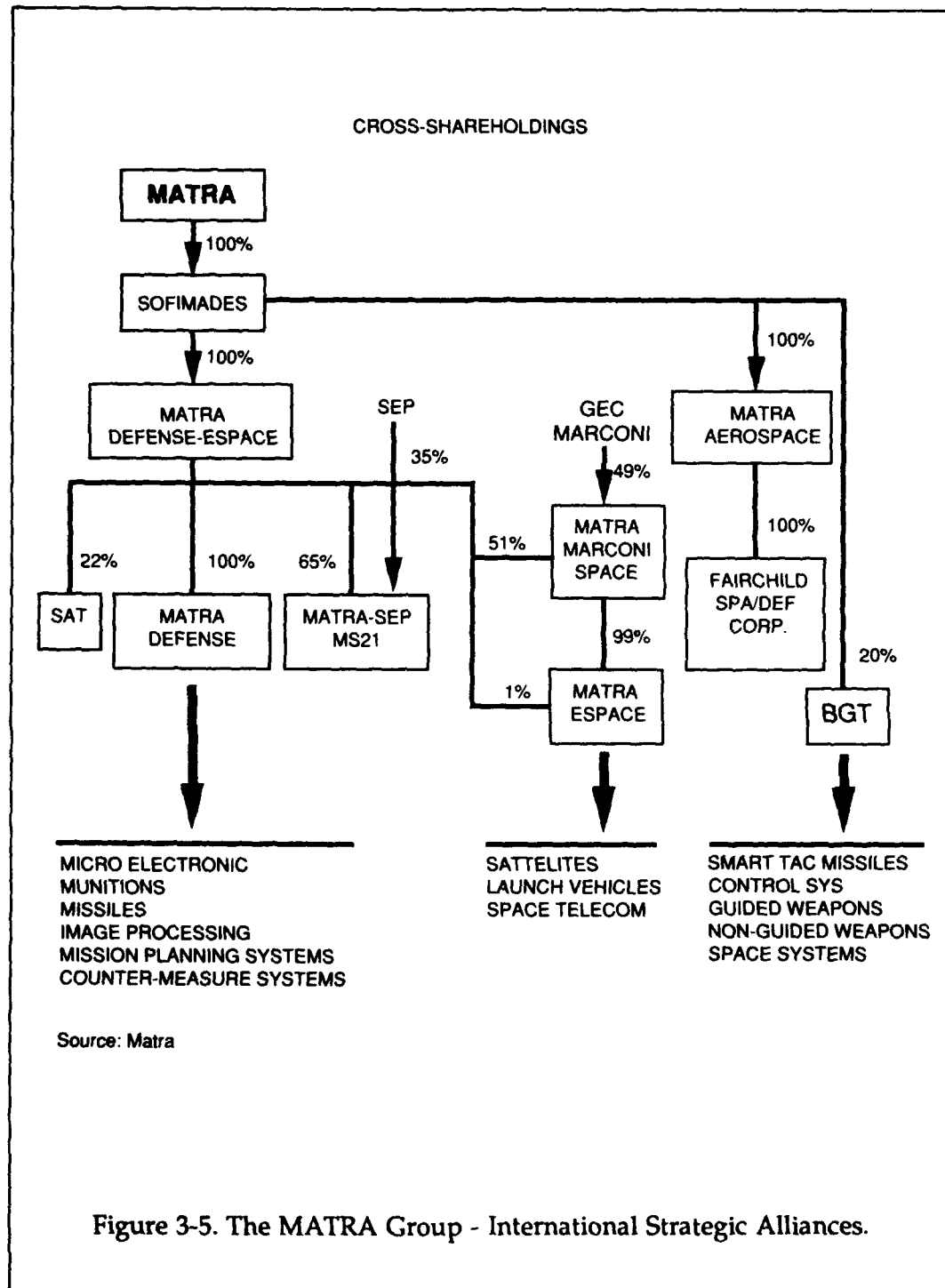
Transatlantic Alliances

Corporate alliances have not been limited to European firms and have also included the acquisition of U.S. defense firms. Figure 3-6 is a sample of such acquisitions in an 18-month period during the 1988-89 time-frame. European strategy includes positioning in the U.S. defense market, expected to remain the largest defense market in the world, to maximize export opportunities and achieve the attendant scale economies. For these reasons, Europeans appear to be more willing to invest in the U.S. defense sector knowing it will probably take a considerable amount of time to gain full acceptance within the defense market. Unlike U.S. defense firms, Europeans like the Japanese, are less preoccupied with short-term growth and financial results.

Similar acquisitions by U.S. defense firms of European defense firms were almost negligible for the same period.

The Rationalization Phase -- The Next Step

The concentration of Europe's defense industry through consolidation is advancing at a feverish pace as Europeans work toward greater competitiveness in the world defense market and position themselves for the opening of Europe's defense markets. Companies are building the critical mass necessary at the company level through national and cross-border mergers and acquisitions. Critical mass is also being built at the industry level through the formation of multinational consortia and joint ventures. Defense companies will use that strength to influence the defense market structure in Europe. The depth and complexity of strategic alliances being formed nationally and internationally can only result logically in a more open defense market; otherwise, purpose of alliances and their costs will not be justified. Europeans have not waited for more open markets before implementing appropriate actions because conditions were compelling to adopt more proactive strategies. Consolidation in Europe's defense sector has probably reached a plateau with major players now entering a period where rationalization will occupy management's attention. For example, Matra of France will not exchange additional shares with the defense groups of Daimler-Benz and GEC until these companies have fully rationalized the duplicative resources generated with their acquisitions of MBB and Plessey,



U.S. FIRMS

1. SINGER'S ELECTRONICS
SYSTEMS DIVISION
2. SIPPICAN
ASW SPECIALIST
3. ELECTRONIC SYS. DIVISION
ELECTRONIC SYSTEMS (JTIDS)
4. WILCOX ELEC. INC.
NAVIGATION AIDS/ATC
5. ALLIED SIGNAL OCEAN DIV.
ASW
6. FAIRCHILD INDUSTRIES
DEFENSE ELEX.
7. GOULD'S INDUSTRIAL
AUTOMATION DIVISION
8. ALLIED SIGNAL'S BENDIX
ELECTRONICS GROUP
9. RESDEL INDUSTRIES
SONOBUOYS/DEF. COMMS.
10. REFLECTONE SIMULATION
SIMULATION EQUIPMENT
11. MIDWAY AIRCRAFT INSTRUMENT
SIMULATION EQUIPMENT
12. LEAR SIEGLER
AVIONICS
13. EPSCO
MICROWAVE COMM.
14. LEAR SIEGLER POWER SYS.
GEN. & ELECTROMECH. ACTUATION
15. KIDDE FIRE PROTECTION GROUP
A/C ENGINE/MIL VEH. PROTECTION

BUYER/COUNTRY

PLESSEY COMPANY
UNITED KINGDOM
PLESSEY COMPANY
UNITED KINGDOM
PLESSEY COMPANY
UNITED KINGDOM
THOMSON-CSF
FRANCE
THOMSON-CSF
FRANCE
MATRA
FRANCE
DAIMLER-BENZ
GERMANY
SIEMENS
GERMANY
DOWTY
UNITED KINGDOM
BRITISH AERO (41%)
UNITED KINGDOM
DASSAULT GROUP
FRANCE
SMITH INDUSTRIES
UNITED KINGDOM
LUCAS INDUSTRIES
UNITED KINGDOM
LUCAS INDUSTRIES
UNITED KINGDOM
PILGRIM HOUSE GROUP
UNITED KINGDOM

Source: Defense Systems Management College

Figure 3-6. EC Investment in U.S. Defense Firms Acquisition -- 1988-89.

respectively. Fully functioning specialized industry groups along product lines will likely result but not until production base capacity has been optimized.

The rationalization phase of the restructuring process will prove to be the most difficult for Europeans because of the traditional value placed on industrial stability by all European governments. The social charter is a powerful institution in Europe where "socialism" and the traditional protector-role of government is firmly grounded in political and societal thinking. Rationalization will most likely entail the closing of facilities and loss of jobs in some sectors. The European Commission estimates that more than 250,000 jobs per year could be lost throughout European industry (commercial and military) in the early years of a new open market. What is best for industry and the general economy may not be viewed favorably by people affected. You need only look at the areas where the least amount of progress has been made in the Europe 1992 program -- free movement of wage and salary earners -- to realize the magnitude of difficulty to be experienced as Europe becomes more "Europeanized." Thinking European will be necessary and the whole process will take time. Rationalization may become as difficult to the European defense industry restructuring process as harmonization of taxes and workers rights has become for the Europe 1992 program.

Open European Defense Markets

European defense industry executives believe that consolidation and rationalization in their industry could leave

all of Europe with only the below-listed 5 or 6 major prime contractors or platform integrators.

FRANCE - THOMSON-CSF, MATRA,
AEROSPATIALE
BRITAIN - BRITISH AEROSPACE,
GEC-MARCONI
GERMANY - DAIMLER-BENZ
ITALY - AERITALIA

It might be tempting to focus only on the negative effect these near-monopoly conditions would have on competition, certainly a legitimate concern. However, a less obvious but equally likely outcome, would be for this trend to act as a catalyst for further progress in opening Europe's defense markets. Lack of national competition will increasingly place national defense equipment procurement officials (buyers) in sole-source situations, making it difficult to maximize constrained defense budgets. Also, as has been shown, these developing defense conglomerates are connecting themselves through a series of complex multinational strategic alliances in anticipation of more open defense markets. One may then find the buyers and suppliers acting together as a forcing function for increased cooperation by European governments on this score. The Independent European Program Group (IEPG) mission of opening defense markets would then be greatly facilitated by these changes.

Japan's Role in European Defense Industry

Everything going on in Europe's economy today is as much a result of economic globalization pressures as it is

Europe's attempt to complete her internal markets through the Europe 1992 program. It is highly likely that Japan will play a significant role in the long-term evolution of the European defense industry, because of their incredible financial power as well as their state-of-the-art technology, especially in electronics. The recent highly publicized joint venture talks between Germany's and Japan's largest industrial groups, Daimler-Benz and Mitsubishi, should serve as a reminder to the U.S. defense community, particularly congressional policy-makers and DOD as they formulate and consider new trade legislation (relaxation of technology transfer regulations, etc.), that there is a third competitive force at work in Europe's defense industry and that it will not be a two-horse race for world defense market share. Even though Japanese firms are prohibited by law from exporting defense equipment and exchanging defense technology except with the United States, dual-use technology, which is expected to increasingly drive defense technology, is high on the list of possible ventures between the two conglomerates, including electronics, communications and aerospace. Japan is not the only contributor within this third competitive force. Competition from developing countries such as South Korea, Taiwan, Indonesia, India, China, Israel and Brazil must now be accounted for as global strategies are developed.

How the Europe 1992 Program Will Improve European Defense Industry

As Europe's defense firms restructure, the Europe 1992 program is giving them a shot in the arm by creating

efficiencies in Europe's economic and social infrastructure that will translate directly into improved defense industries. The removal of physical and technical barriers to free trade among EC member states will significantly improve the business environment throughout Europe resulting in operating efficiencies and increased competitiveness.

Physical Barriers

In the area associated with the freer movement of goods among member states, the elimination of internal frontier controls has allowed for expediting the movement of goods throughout Europe. The Single Administrative Document (SAD) is in effect, which allows a shipment to travel from one country, through others, to its final destination without the extensive paperwork required in the past (similar to U.S. interstate movement of goods). Today, one document can be used, compared to the more than 100 documents (depending on the goods and their destination) for intercountry shipments in the past. In addition, there is the elimination of intercountry vehicle inspections which, together, should reduce the cost associated with intercountry business transactions. Also, large inter-EC defense consortia being formed will demand liberalized border movements if their strategy of consolidation can ever be expected to work efficiently.

In the area associated with the freer movement of people, removal of frontier controls has allowed the EC workforce to move freely throughout EC countries with the elimination of passport and visa requirements and the associated

customs duties for the goods they carry with them. Agreements are being made on the mutual recognition of professional degrees and diplomas; expansion, definition and standardization of European workers rights; and, the right of workers to establish residency and employment in any EC member state. The goal is to fashion a system that will permit workers to go where the work is.

Technical Barriers

In the area of *common industrial standards* the European Community (EC) is streamlining its ongoing effort to harmonize differing national standards, as well as testing and certification procedures, into a single EC-wide body of uniform standards and regulations. The emerging common industrial standards for the EC nations have the potential for helping European defense industries to become more efficient, thereby reducing their costs and increasing their competitiveness in European and world markets.

The EC continues to publish directives that set forth general guidelines for standards in specific industries or areas. However, the task of actually formulating EC standards has been left to non-governmental European standardization bodies, such as the Committee for European Standardization (CEN) and the Committee for European Electrotechnical Standardization (CENELEC). International standards, where they exist, will be adopted as the standard of first choice. In areas where international standards do not exist, existing European standards will be harmonized, or new standards written. Recently CEN and CENELEC have been

forwarding draft standards to the American Manufacturers Standards Institute (AMSI) for review and comment by appropriate U.S. industry, as reported by the General Accounting Office in its report GAO/NSIAD-90-60, *Europe Single Market Issues of Concern*, February 1990.

In the area associated with the freer movement of services, the EC hopes to bolster industrial efficiency through the introduction of greater competition with the deregulation and the liberalization of rules governing the various service industries, which include finance (banking, insurance and securities), transportation and energy (utilities), telecommunications, etc. For instance, liberalization of financial controls will increase competition in banking and, with the removal of restrictions on capital transfer from one country to the next, defense companies will be able to obtain the more advantageous financing for their projects. Also, increased competition in the energy sector will benefit heavy power users in the defense manufacturing industries. These are only a few examples that demonstrate operating efficiencies that will result from the Europe 1992 program and benefit the defense industries directly.

Another crucial area in the Europe 1992 program providing aid to the European defense industry is their \$5.2 billion dual use technology research programs. By establishing a European framework for increased cooperation in this area, Europeans have instituted a significant strategic program that will directly improve European defense technology. The Single European Act of 1987 officially launched a substantial European movement toward a coordinated scientific and technological cooperation.

One of the main objectives of the act, in addition to creating a large single market, was to create an expanded European research and technology community which is essential to ensure economic growth through industrial development.

The European Strategic Program for Research and Development in Information Technologies (ESPRIT) is oriented toward developing basic information technologies for industry. The ESPRIT program attempts to forge closer links among industry, universities and the EC governments. Its aim is to provide participants in the precompetitive field, which lies between basic research and development of marketable products, with basic technological links to several important fields. Three major categories of ESPRIT science programs that include basic technological developments are office systems, computer-integrated production, and advanced data processing. It is one of the largest international scientific and technology programs of its kind, and represents a third of total EC spending on precompetitive research in information technology.

European Research in Advanced Materials (EURAM) provides basic research funding to public and private sector EC laboratories to promote advances in sophisticated materials, such as ceramics and light alloys.

The European Commission is directing research and development activity in other areas as well. Basic Research in Industrial Technologies for Europe (BRITE) is intended to provide assistance to research centers, universities and companies across borders in several traditional manufacturing and production

fields. In the first phase of the BRITE program, 1000 firms, research centers and universities have worked on 200 projects. The second phase started in 1989 and combines BRITE and EURAM and plans to focus research toward aeronautical applications. This is significant because it represents the establishment of a dedicated, full-scale European aeronautical research and development program. The new BRITE/EURAM project has a budget of 499.5 Million ECUs (\$525 million) for its first 4 years of operation.

Research and Development in Advanced Communications technologies for Europe (RACE) is aimed at helping the telecommunications industry. The strategy is to standardize telecommunications technologies and move the EC toward integrated broadband communications based on integrated service digital networks.

U.S. Defense Industry Responds to European Integration

Nearly every company interviewed had developed or were in the process of developing strategies for Europe. In some cases the investment of time and financial resources was considerable and reflected their appreciation for the significance of events in Europe's defense industry today as well as company determination to take part in Europe's defense market. Therefore, the education process concerning the changes in Europe is in full swing within the U.S. defense industry. Corporate strategic planners and industry associations are very active on this subject

and working hard to advise of challenges and opportunities lying ahead.

The major factor driving interest in Europe's defense markets by the major U.S. defense firms is **decreasing domestic defense budgets** and the resulting need to **increase export sales** to maintain scale-economies, competitive positions and minimize downsizing. Events in Eastern Europe and the Soviet Union coupled with massive European defense industry consolidation have only intensified the degree of urgency being ascribed to the development and implementation of a European strategy. Gaining market access is a common objective through some form of collaboration with an established European defense firm.

Changes at Home

Within the context of the U.S. *domestic defense market*, industry is in the first stage of rationalization attempting to **improve efficiency of operations**. These changes are not due solely to European economic integration but have been going on for some time as a result of rapidly evolving global economic trends. Some of the strategies being implemented include reduction of overhead expenses; improving quality and product performance; and diversification into the defense niche areas like arms reduction verification technologies, C³I, drug interdiction equipment, trainers and simulators and upgrade/modernization to existing equipment. These areas are likely to be less impacted by future budget reductions and provide realistic markets for an industry that expects steady declines in production of heavy vehicles, aircraft and ships.

Strategies for Europe

The U.S. defense industry restructuring has been going on for some time within a very large domestic market which has certainly enabled the principal players to achieve critical mass. Therefore, further consolidation for this purpose is unlikely, as declining market conditions will likely thin the ranks of the defense industrial base in the coming years. European single-market initiatives and the restructuring and unification or "Europeanization" of its defense sector, coupled with declining defense budgets, will erode U.S. defense industry market share in Europe and, possibly, touch off a new round of industry restructuring with transatlantic dimensions.

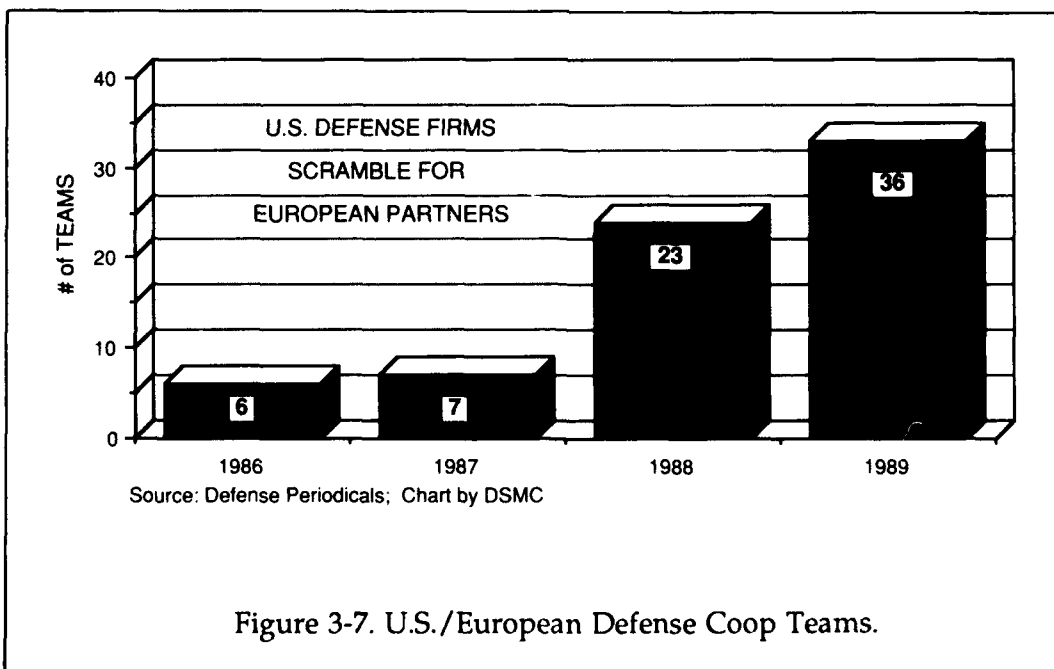
The European market is important because about half of all U.S. weapons exports go to our European Allies. Strategies for continued participation in Europe's defense market include exploiting business advantages resulting from previous collaborations. For example, more than 14 countries have participated in the production of the F-16 by General Dynamics. General Dynamics believes that the resulting strong international connections between U.S. and European aerospace firms will not suddenly disappear and can be parlayed into future business opportunities. A more concrete example of this strategy was realized by Texas Instruments when it was awarded R&D contracts for the "strictly" European Fighter Aircraft (EFA) program. These contracts came as a result of successful collaboration with the German firm of Krauss-Maffei in the development of gunner thermal sights for the Leopard 1/II tank. Other strategies are based on

establishing alliances for providing specialized project support in niche areas as subcontractors or consultants, thus avoiding direct competition with primes. Companies felt that in the past, Europeans preferred the "one-company-do-it-all" approach. However, current trends will tend to drive them to more cost-effective methods, entailing the use of consultants in highly specialized technical areas. The smaller U.S. defense firms we interviewed believed opportunities existed in niche areas like data correlation, management technology, computer support, CAD/CAE/CAM, systems engineering, logistics, life-cycle support, etc. One company is planning an entrepreneurial venture with a European university for conducting R&D in the field of EMI (electro magnetic interference), capitalizing on the tendency of European defense firms to utilize universities for this type of work.

Strategies and motivations will vary widely but, in general, U.S. defense contractors are evaluating their strengths (and weaknesses) against market opportunities in Europe and trying to arrange alliances with EC defense companies that compliment their capabilities and not just duplicate them.

Forming Strategic Alliances--Short Term

The U.S. industry recognizes that competing in Europe's defense market, against the industry groups that are forming, will be formidable. The race is on to form partnerships or alliances with suitable European defense firms. Figure 3-7 shows a significant acceleration of short-term project specific teaming that occurred between U.S. and EC defense firms in 1988-89. A comprehensive listing of these teaming alliances is at Appendix C.



Partial motivation for such an increase can be seen in Figure 3-8 where a relationship between this increase in teaming coincides with the declining U.S. defense budget.

Preserving a market share in a declining world defense market and the tightening of Europe's defense market, brought on by European defense industry restructuring, provide significant motivations to establish working relationships with European defense firms before such partnerships are no longer available. Many U.S. defense firm executives feel that most transatlantic alliances will be formed quickly and, perhaps, that opportunities may not be available even in 24 months.

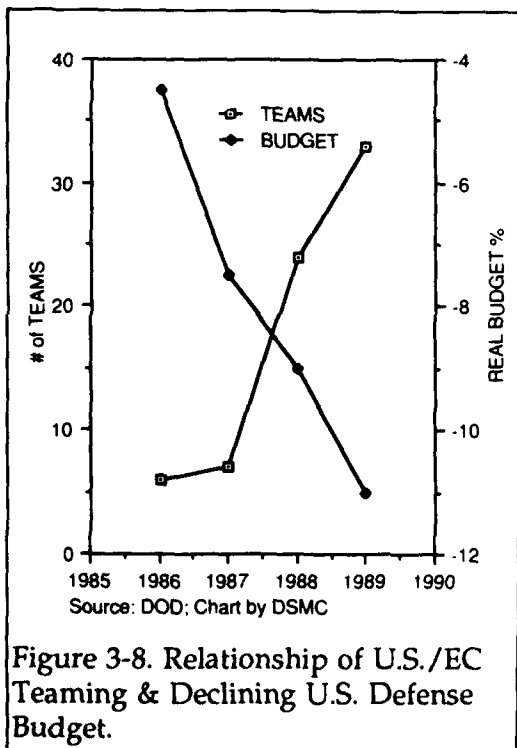


Figure 3-8. Relationship of U.S./EC Teaming & Declining U.S. Defense Budget.

Jean-Francois Briand, executive vice president of France's Thomson-CSF, said, regarding U.S. and European partnering, "It seems that everybody in the USA is trying to come to Thomson and others. All European companies have had approaches from the USA." Prophetically, Rockwell CEO, Donald R. Beall, said in 1987 of Rockwell's future growth, "We are pushing very hard to take advantage to expand internationally through collaboration of one sort or another. U. S. companies are becoming increasingly aware of the necessity for collaboration, particularly in the high technology business and they are realizing that they are playing in a world market not just in a U. S. market."

The development of long-term relationships is rare. This is principally because U.S. companies are taking the easiest and safest steps first as they continue to evaluate their strategies; also because Europeans are now willing to allow a U.S. partner access to their market only if an equal access to the U.S. market is part of the deal. The new, revamped European defense industry and world events with their industrial implications enable Europeans to demand such *quid pro quo* arrangements. Establishment of long-term European alliances (cross shareholdings, joint companies, etc.) by U.S. defense firms is not likely at this time because of their relatively poor financial condition (high debt to equity ratios), declining European defense budgets, overcapacity in the European defense industry and U.S. firms' traditional preoccupation with short-term financial results. In addition, restrictive U.S. policies (discussed in Chapter 4) associated with technology transfer and re-export licensing create a disincentive to U.S. firms considering long-term investments in the

European defense market. These defense restrictions also make U.S. defense firms a less attractive partner from the European perspective. The "two-way street" issue has taken on a new dimension. Continued prosperity for the U.S. defense industry will depend more and more on collaboration with Europe and this may entail U.S. companies relinquishing something of their position in the U.S. domestic market. A situation is fast developing where neither the U.S. or European defense industry will prosper unless both prosper.

"The ability to learn faster than competitors may be the only sustainable competitive advantage."
-- A.P. de Geus, Head of Planning, Royal Dutch Shell

CHAPTER 4

Impacts and Concerns

Introduction

If one combines the many cooperative development programs between the United States and Europe with the more than \$50 billion in defense trade between the two communities during the last six years, it becomes obvious that the two defense acquisition communities are interrelated and interdependent. Because they are so interconnected, major changes and trends observed on the European side (like the restructuring European defense industry, improving European infrastructures and technologies, and moves toward a more united European acquisition community observed in previous chapters) are bound to result in profound impacts on the U.S. side. Although it is difficult to predict exactly what those impacts will be, it is safe to say they will show up in the two general areas of interface between the two communities --government-to-government armaments collaboration and defense trade.

The first section of this chapter examines how a strengthening European defense acquisition community may impact government-to-government armaments collaboration, primarily in the area of cooperative programs as that is the outstanding form transatlantic armaments collaboration has taken in the last few years. To help gauge how defense trade between the two communities may be affected, the second section examines whether or not the competitiveness of the European defense industry will improve as a result of the changes being encouraged by Europe 1992 and the IEPG. Although these changes have been mentioned elsewhere in this study, it is felt that summarizing them in a step-by-step analysis using a newly-developed theory on competitiveness will be useful not only for this study, but could provide a method for analyzing industrial competitiveness in future efforts. Finally, the third section of this chapter will briefly examine how

changes observed in this study could affect export sales and unit costs of U.S. defense equipment.

Transatlantic Cooperation -- Impacts, Problems and Solutions

Catching the "Europhoria Bug"

Throughout the 12 European Community nations, Europeans are stepping out a little smarter and holding their heads just a little higher these days. The Europe 1992 program, with its remarkable ability to unite the EC nations toward a common goal, has sparked a sense of hope and pride that has been missing from the European psyche since economic "Eurosclerosis" set in during the '70s. Now, Eurosclerosis has been tossed aside by improving economies, and a new password has emerged. "To speak of Europhoria is right," says Italian Foreign Minister Geanni de Michelis. "There is a change of perception, not just among governments but among the people." Bitten by this Europhoria bug, Europe's leaders are pointing with pride to their larger, more competitive corporations, their newly emerging technologies, and their soon-to-be-united markets and declaring that Japan and the United States must begin dealing with them as equals in the world market place.

Tired of Being Little Brothers

Nowhere is this burgeoning pride more evident than in Europe's defense acquisition community. During more than 30 interviews with European ministry of

defense personnel and defense industry executives, the message of a stronger, more self-reliant European acquisition community came through loud and clear, especially when discussions turned to transatlantic cooperative programs. Europeans, with their improving industrial base and emerging technologies, are no longer satisfied with being treated as little brothers in transatlantic cooperative programs. If relations don't change soon, they seem intent upon accelerating a trend that has been years in the making -- pan-European programs instead of transatlantic programs. As one European defense industry executive put it, "Your idea of cooperative programs has been 'The U.S. builds and we Europeans buy'. We're no longer interested in that. We want true partnerships now."

Europe Goes It Alone

This determination to be more than just customers will come as no surprise to those familiar with European weapons development. European willingness to put up with the trials and tribulations of the European Fighter Aircraft (EFA) program indicates the premium Europeans are willing to pay to establish independence. Despite the fact that it would have been less expensive for participating EFA nations to buy a United States fighter aircraft (for example an improved F-16 Agile Falcon or F-18 Hornet would have cost \$20 - 30 million per copy versus \$40 - 60 million per copy for EFA), no serious consideration was given to such an alternative. When it became clear that the United States would not discuss stealth technology, creating yet another issue with technology transfer, Europeans resolved to go it alone. The EFA participants accepted the fact that EFA

would cost more and have less stealth capability, and then proceeded to independently develop their own fighter aircraft. Another example is the French/German PAH-2 helicopter program. Despite lower costs and comparable performance of the available U.S. Army Apache helicopter, France and Germany chose to develop their own helicopter, demonstrating that where major weapon systems are concerned, Europeans are willing to pay more and accept a little less rather than resort to a buyer relationship with the United States.

Not only are Europeans willing to spend more for their programs, but there's some evidence that Europeans are willing to abandon existing transatlantic cooperative programs for programs internal to the European community. One example being looked at by the General Accounting Office is the United Kingdom switch from the NATO Anti-air Warfare System program to the Family of Anti-air Missile Systems, a competing Franco-Italian program. Lockheed, originally involved in the now-defunct Future International Military Airlifter program, saw first-hand evidence of this trend in the summer of 1989 when the involved European organizations decided that instead of pursuing a transatlantic program, they would establish an all-European program called the European Future Large Aircraft.

This trend, fueled by disappointments over failed transatlantic programs and resentment over past imbalances in defense trade between Europe and the United States, can be expected to accelerate as the provisions of the Europe 1992 program go into effect. National barriers that have been an irritant

to cooperation between European nations will be disappearing as movement of goods, people, and capital is made easier. When faced with a choice between a deregulated environment for European cooperative programs and a frustrating regulated environment (to be discussed later) for cooperative programs with the United States, Europeans will naturally take the path of least resistance.

Economic Pressures Are Pushing Europeans Closer

Further evidence of a European move away from transatlantic programs to pan-European programs is provided by the ascent of the Independent European Program Group (IEPG). Aside from the Group's obvious goal of integrating European defense markets, the growing strength of the IEPG demonstrates a European desire to be less dependent on the U.S. defense industry and a U.S. dominated NATO (Chapter 2).

Economic incentives of avoiding duplication of R&D programs and improving European production economies-of-scale are also prime motivators in the trend toward pan-European programs. Recently, at a seminar on "European Defense Research and Procurement after 1992," Sir Peter Levene, chief of Defence Procurement in the United Kingdom and chairman of the IEPG, recognized these "economic pressures which are pushing Europeans toward closer cooperation on defence research and procurement." Just as members of the European Community on the civilian side have recognized the problems of fragmented markets, Europeans on the

defense side have recognized that fragmented, duplicative efforts keep them from meeting their goal of a stronger, more efficient European defense industry.

A Dash of Protectionism

Clearly, some of the factors encouraging this trend toward an independent European solution to weapons procurement are protectionist in nature. As explained in Chapter 3, the European defense industry is undergoing a tremendous restructuring that will cause some companies to fold and unemployment to increase. With such changes, it should not be surprising to hear views like the one expressed by French Defense Minister Jean-Pierre Chevenement who called for a European preference in military procurement to protect European defense industries. This attitude, however, does not seem to dominate. For each protectionist statement, two declarations can be found from European leaders that the European defense market should evolve into an open market. Members of the IEPG have, in fact, stated that the IEPG process should open European defense markets to the United States and Canada as well as to participating nations.

Europe's New Technology -- Making It All Possible

If this European movement toward self reliance is being powered by such forces as "Europhoria," the IEPG and those few favoring some degree of protectionism, then it is all being made possible by Europe's improving technology base. Twenty-five years ago, some European nations bought the F-104 Starfighter because their industries weren't ready to produce a supersonic fighter. Only 15

years ago, four small European nations turned to the United States to buy the F-16. That has changed, and it is now technically and cooperatively possible for Europeans to rely on their programs in the high technology area of fighter aircraft development.

Indeed, fighter aircraft technology is not the only area where Europe's technology base is becoming stronger. Europe, like Japan before it, has been working toward reaching and, wherever possible, surpassing the U.S. technology base. The March 15, 1990, Department of Defense Critical Technologies Plan points out that in 13 of the 20 DOD critical technologies, NATO Europe is capable of making major contributions toward future U.S. technology challenges, while in 3 of the 20, Europe is significantly ahead in some niches.

Getting Their Research Act Together

To encourage further improvements in European technology, the European Community is sponsoring \$5.2 billion worth of dual use research and development through such programs as EURAM, ESPRIT, and BRITE (Chapter 3), while the IEPG has begun a program called EUCLID (Chapter 2) designed to coordinate previously disjointed national defense research programs.

Further collaborating improvements in European technology were interviews with European Office of Defense Cooperation (ODC) representatives who monitor European development programs. These interviews revealed that in some of the areas where Europeans are behind the United States, they are behind only if U.S. technologies in black programs are taken

into consideration. The United States may still have the overall lead in technology, but Europe's defense technology base has made tremendous strides, and is now on a level to support independent, pan-European programs.

U.S. Approaches -- Disincentives Contributing to the Trend

One factor that seems to have contributed as much as any to this European trend toward pan-European programs is the way the United States approaches cooperative programs. It has long been a U.S. goal to encourage transatlantic cooperative programs, but when yesterday's concepts are combined with today's realities, the opposite is happening. From the U.S. viewpoint, transatlantic programs are desirable because they decrease development costs, increase allied economies-of-scale, and strengthen political, commercial and economic ties with our allies. Strengthening ties with allies is becoming increasingly important as Europe wonders if it should still be marching to the beat of the NATO drum, and Americans wonder about the protectionist nature of a stronger and more united Europe. Economic benefits of reducing costs of developments and increasing economies-of-scale of production have increased in importance with spiraling costs of weapons development and declining defense budgets. Instead of recognizing the newly increased importance of these benefits and taking advantage of them in a planned fashion, the United States clings to concepts that prevent full realization of these benefits.

From the European viewpoint, there are three areas that create problems: technology transfer, third country sales, and administrative relations. Every European interviewed mentioned these same three areas as disincentives to cooperating with the United States. One even wondered if U.S. approaches in these areas had been designed to separate the European defense acquisition community from the U.S. acquisition community.

Technology Transfer -- A Continuing Problem

When discussing technology transfer, Europeans quickly pointed out that they understood and agreed with the U.S. policy of denying technology to our common enemies, but they were frustrated by the apparent lack of trust on the U.S. side. Another common complaint centered around the bureaucratic system used by the United States to review and approve technology transfer. Examples were cited where a cooperative program Memorandum of Understanding had been signed by DOD only to find that the Commerce or State Department would not allow technology transfer by denying approval of the export licenses needed to execute the cooperative program. Fortunately, DOD has taken notice of such problems and is working more closely with the Commerce and State Departments in a promising effort to expedite government-to-government licenses for cooperative programs.

One of the more embarrassing cases cited of U.S. attitude toward technology transfer to Allies was of a U.S. briefing to the French and British on a

planned radar improvement to the U.S. E-3 aircraft. Despite the fact that the information in the briefing had been covered in a weeks-old Aviation Week and Space Technology article, the British and French could not be given copies of the slides because they weren't approved beyond oral and visual release. Many others mentioned U.S. no-foreign-disclosure (NOFORN) documents and meetings on cooperative programs (programs, by the way, that European money is supporting) that Europeans were not allowed to attend.

The time-consuming requirement for the United States to review each and every cooperative program document, the production of which is paid for in part by European monies on some cooperative programs, was mentioned as an especially aggravating aspect. Many Europeans feel the United States takes great pains to ensure minimal West to East technology flow, but is happy to accept East to West flow. A case in point is the Advanced Short Takeoff and Landing Fighter, a program where the United Kingdom is willing to bring to the table considerable Harrier expertise but the United States is reluctant to reciprocate by sharing any stealth technology.

U.S. Industry Chimes In

Europeans are not the only ones frustrated by the U.S. approach to technology transfer. Interviews with U.S. defense industry executives revealed a frustration level that is as high or higher than the Europeans. Complaints about lost sales and opportunities because of delays for export licenses were common. One U.S. industry executive said that because of such delays, European firms normally have a 90-day head start on competition for new

defense business. Most U.S. industry executives were adamant that the system for export licenses for technology transfer was too complicated; so complicated, in fact, that they hire specialists to massage the bureaucracy to get timely approval on even outdated, low-level technology.

Two European companies have gone further than hiring specialists. To buy U.S. products in a timely manner, one European defense firm formed a U.S. subsidiary dedicated to advising small U.S. companies how to get export licenses. Another has set up a company in the United States that buys U.S. products from U.S. companies and then uses their experts to walk the halls of the Defense, State, and Commerce Departments to obtain export licenses to ship the products to their parent corporation. Clearly, the U.S. approach to technology transfer puts U.S. companies at a competitive disadvantage and creates an extra cost for our Allies to do business with the United States.

Third-Party Sales: Room for Improvement

Another economic disincentive to cooperating with the United States from the European viewpoint is U.S. policy on third party sales. The European willingness to enter into any agreements that restrict third-party sales is rapidly diminishing. The case of the Airbus A320 is an example of how far Europeans are willing to go to ensure they can sell to whom they want. A few years ago, the United States blocked a sale of the Airbus to Libya because the Airbus contained U.S. engines. As a result, the Airbus consortium went to great cost and effort to design out U.S. content of the Airbus A320 to prevent such future occurrences.

Not only does the U.S. position on exporting goods to third-party nations cause our partners aggravation, but our method of imposing this policy creates mistrust and puts U.S. firms at a disadvantage. Fueling this mistrust is the U.S. policy on Memorandum of Understanding (MOU) content concerning third party sales: MOUs must contain a provision requiring written approval from the United States before a third-party transfer can be affected. This approach adds economic risk to the program from the European viewpoint. Without a large, coherent defense market like the one enjoyed by U.S. firms, Europeans turn to export sales to increase their economies-of-scale. With no up-front guarantee from the United States that they will be able to do this, Europeans, like all good businessmen, consider this an added risk to doing business with the United States and are thus encouraged to turn to pan-European programs. Perhaps it would be more appropriate for the United States to pre-approve selected third-party sales in MOUs and, thereby, somewhat reduce the risk perceived by our transatlantic Allies.

Administrative Problems: Amusing or Embarrassing?

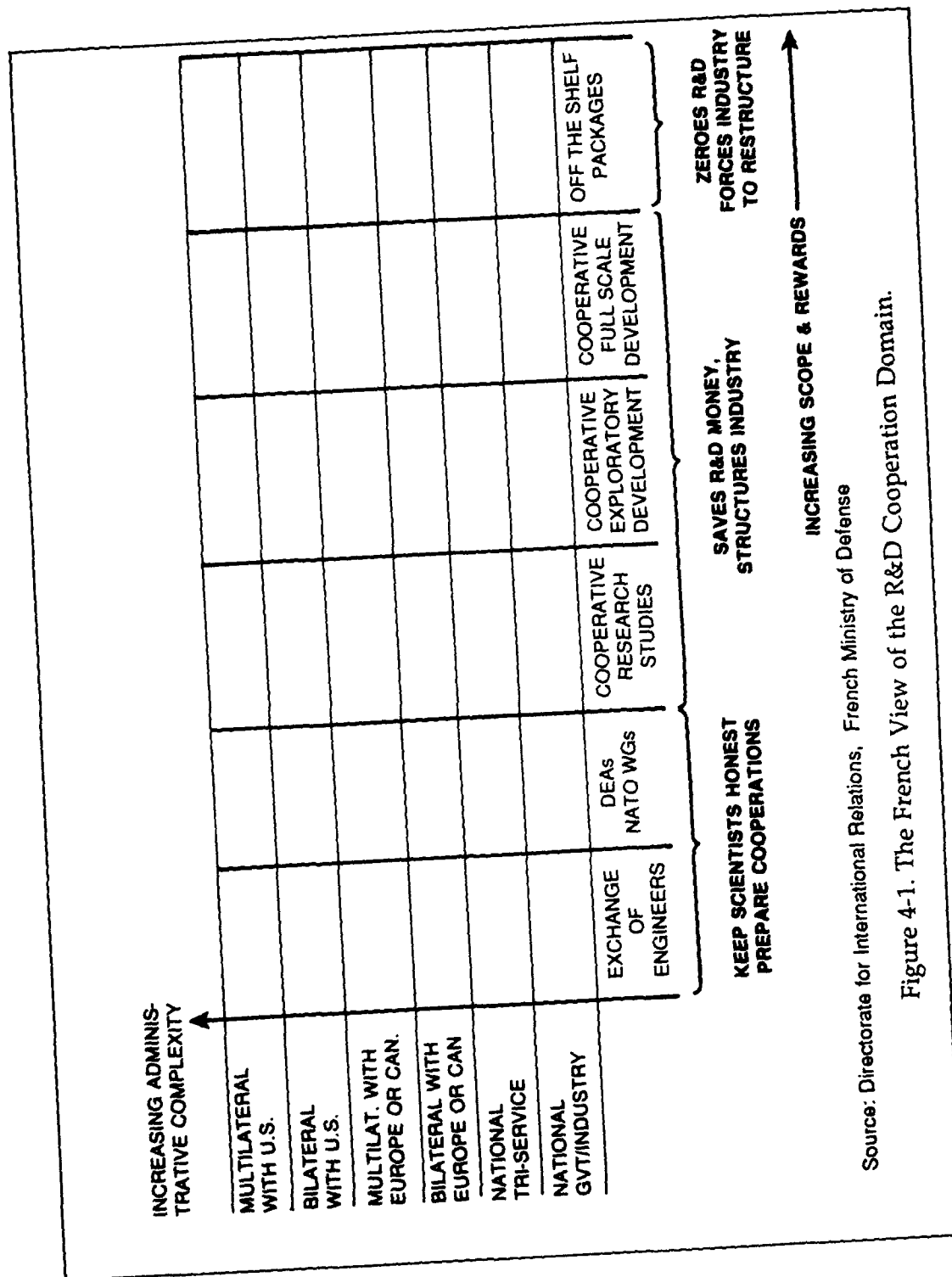
How Europeans feel about the third area, U.S. administrative relations with Allies, became obvious during an interview with Philippe Roger, Deputy Director of International Relations for the Delegation Generale pour l'Armement (the French centralized military procurement agency), when he presented the chart shown in Figure 4-1. Mr. Roger uses the chart to gauge the difficulties and rewards of French participation in cooperative programs. To use the chart, one would go along the bottom until hitting upon the type of cooperative project being

considered and then go up the appropriate column until coming to the national relationship being considered. The chart shows that as you go up the columns, the more administratively difficult the program becomes. It is worth noting that bilateral cooperative programs with the United States are considered more difficult than multilateral programs with European nations. Most difficult of all are multilateral programs involving the United States.

When asked for specifics concerning administrative relations with the United States, Mr. Roger and other interview subjects told stories of U.S. contracting officers insisting that foreign contracts have a Vietnam veterans clause (most of France's Vietnam veterans have long since died or retired). Another example given was the case of a U.S. contracting officer holding up a Foreign Weapons Evaluation Program because the "Buy America Act prohibits purchasing foreign made materials." While such tales may be amusing or embarrassing depending on one's viewpoint, they demonstrate that the U.S. acquisition community is not set up for dealing with cooperative programs.

Expensive Delays

Another area of concern associated with the administrative interfaces between the United States and its cooperative partners are delays due to ponderous U.S. review and decision-making processes. One example given involved the Multinational Information Distribution System (MIDS) program. The schedule for development of this avionics system was critical so that it could meet development schedules for the French Rafael and EFA fighter aircraft. Originally, the United



Source: Directorate for International Relations, French Ministry of Defense

Figure 4-1. The French View of the R&D Cooperation Domain.

States announced that MIDS would be installed on the U.S. F-16. Later, when the U.S. Air Force lost interest in the program, it took more than a year for the United States to regroup and decide to put the system in the U.S. Navy F-18. This indecision and delay not only affected other programs' schedules, but resulted in a significant amount of money being wasted by the participating nations to keep the program going during a year of inactivity.

DOD Shoots Itself in the Foot -- Four Times

Seeing such problems between the United States and its Allies, one naturally wonders whether internal DOD documentation and management structure contribute to these problems. Considering that DOD policies and management structure for armaments cooperation have resulted from unplanned reactions to outside pressures, primarily from the Congress and our allies, it is not surprising to find four basic problems that cause internal DOD mismanagement of cooperative programs: outdated directives, no powerful central authority and control, no overall plan, and "onerous review and approval processes" as Mr. Frank Cevasco, Assistant Deputy Under Secretary of Defense (International Development and Production Programs) calls them.

Concerning the first problem, outdated directives, a review of Department of Defense directives revealed there is no single directive governing international cooperative programs. Instead, there is a 1980 DOD Directive, 2010.6, "Standardization and Interoperability of Weapons Systems and

Equipment with the North Atlantic Treaty Organization," and a 1967 instruction on "U.S. Participation in Certain NATO Groups Relating to Research, Development, Production and Logistics Support of Military Equipment." Aside from their ages (which means they assign responsibilities to no-longer existing offices due to reorganizations) they have other problems. The first directive concentrates on co-production programs, virtually ignoring cooperative development programs. The second covers the administrative procedures of supporting the NATO Conference of National Armaments Directors. Neither consider important developments on cooperative programs that have occurred within the last 10 years like the Nunn Amendments to the Arms Control and Policy Act, established to encourage cooperative programs. The second instruction gives insight into the state of cooperative programs policy and management within DOD when it directs that cognizant OSD offices will: "Coordinate proposed U.S. policy positions with interested Defense offices." Read carefully; that instruction shows there is no established guidance policy, and that coordination within all "interested" offices would be difficult. The difficulty of such an action will be seen later when DOD management structure is discussed.

You might think that if the above instructions are out-of-date, then the most recent draft of the DOD directive on acquisition programs, 5000.1, might give guidance policy on cooperative programs. After all, international cooperative programs are essentially acquisition programs executed in partnership with our allies. A review of the most recent draft 5000.1 reveals it does not mention international cooperative programs. Whether international programs must go

through the same acquisition reviews and procedures as domestic programs is unanswered. In lieu of policy, most organizations assume that international acquisition programs must jump through the same hoops as domestic acquisition programs. This question then naturally arises: Are internal U.S. reviews of cooperative programs redundant with nearly duplicate go-no-go reviews by a cooperative program's international steering group? It could be argued that because the United States is involved in the steering group reviews, some internal U.S. reviews of cooperative programs could be abolished thereby streamlining the management of cooperative programs.

Plenty of Indians, But No Chief

The lack of up-to-date directives directly reflects the second internal DOD problem: no powerful central control and authority for cooperative programs. As mentioned, management of international cooperative programs within DOD has been scattered throughout the Department because of unplanned growth. No one office has full control of international armaments collaboration. Currently, the Deputy Under Secretary of Defense (Trade Security Policy) works the licenses for technology transfer on cooperative programs and the Defense Security Assistance Agency is responsible for security assistance sales (e.g., Foreign Military Sales) and co-production programs resulting from Foreign Military Sales. Also included within the Under Secretary of Defense (Policy) office is the Assistant Secretary of Defense (International Security Affairs) who, among other duties, works economic issues associated with armaments cooperation.

While the policy offices work these areas, the acquisition office under the Deputy Under Secretary of Defense (International Programs) is responsible for cooperative development and production programs, and for coordinating their activities on international cooperative programs with the above policy offices. It is no wonder that during interviews, a frustrated Office of Defense Cooperation (ODC) officer said that on some issues he often is not sure to whom he should send messages, policy or acquisition, so he sends messages to both. The fact that dual-addressed messages do not create more problems than they do is a tribute to current relationships between individuals working cooperative programs rather than to clearly defined lines of authority and responsibility.

In an October 1989 report, *Defense Industrial Cooperation with Pacific Rim Nations*, the Defense Science Board labeled the current DOD organization for international cooperation "cumbersome and outmoded" and recommended for the third time that a new agency be formed to put the above offices under a central office responsible for international collaboration. Recently, the General Accounting Office has developed a concern along the same line and is considering a recommendation to the Congress that DOD be directed to take action to reorganize its cooperative program offices.

In 1985, Secretary of Defense Weinberger recognized this problem and issued a policy letter creating a DOD Steering Group for NATO Armaments Cooperation, chaired by the Deputy Secretary of Defense. This group had some successes in solving many problems on

transatlantic cooperative programs but it has, unfortunately, fallen into disuse, apparently due to lack of interest by the offices of the Under Secretaries for Defense that were involved.

Are Services Allergic to Cooperative Programs?

Lack of a powerful Department of Defense central control and authority to act as an advocate and protector of international programs often means it is the Services that drive decisions regarding cooperative programs. These Services perceive cooperative programs from a different strategic perspective than the Congress or civilian leaders of DOD. They view cooperative programs as peripheral objectives and equate them with problems and delay -- never mind strategic economic and political benefits. In addition, loss of some control on cooperative programs runs contrary to Services' desires for full control and autonomy on programs. This naturally leads to the Services supporting cooperative programs that are "nice to have." There is also a deeply rooted conviction of the Services that only their set(s) of requirements are appropriate. Services are generally not enthusiastic about compromising on requirements to ensure interoperability among sister Services, much less to ensure interoperability or economic and political benefits through international cooperative programs.

Wanted -- A Hymn Book

Out-of-date directives and no powerful central authority leads to the third problem related to internal DOD management of cooperative programs. There is no master plan for international

cooperative programs: none too surprising considering the condition or, more accurately, the lack of up-to-date policy and goals. In the January 1989 Annual Report to the Congress, Secretary of Defense Frank Carlucci announced that a master plan for international cooperation was in the works. More than a year later, the plan has not been produced. Indications are that the concept has been changed to a group of plans dealing with individual nations. An individual plan for each nation may be a reasonable idea, but this concept will not provide what the defense community needs -- an overall plan with a clear set of goals telling how all DOD organizations are to execute DOD policy on international cooperative programs.

Those working international cooperative programs often use the 1985 Secretary Caspar Weinberger memo on cooperative programs as a guide. The outdated aspect of this memo points out the pressing need for an up-to-date plan. Such problems caused another frustrated Office of Defense Cooperation (ODC) officer to say: "I'll preach the gospel, but I don't know what it is. Give me a Bible, or at least a hymn book so I'll know what tune to hum." Currently, the acquisition office of the Assistant Deputy Under Secretary (International Development and Production Programs) is working on a guide book for international programs, but this office's understaffing and limited ranges of responsibility and authority will undoubtedly affect the timeliness and breadth of this much needed guidance. Perhaps a combined effort with help from the DSMC international programs staff would be a better approach.

Everybody's a Critic

No up-to-date directives, no high-level advocate and no plan exacerbate Mr. Cevasco's aforementioned "onerous review procedures," problem number four. Because there is no high-level advocate of cooperative programs, all organizations involved feel they can say "no" during reviews of cooperative programs. Worse, individuals in these organizations have automatic, institutionalized excuses like industrial base impact, foreign dependence and control, balance of trade, technology transfer, data disclosure and so on that impede progress on international cooperative programs; never mind that global conditions have changed to affect reasoning behind some of these preconceived ideas. This aspect of Mr. Cevasco's onerous review procedures makes Secretary Weinberger's idea of a central committee for review and oversight of international cooperative programs seem indeed appropriate.

Do We Have an Attitude Problem Here? Or Why Does $3 + 4 = 8$?

That brings us to another serious problem with international cooperative programs. Although it is not one of the three disincentives mentioned by Europeans or four problems causing internal DOD mismanagement, it is a problem that makes all of them worse. This is the mind-set of many Americans against internationalism. From the time we begin grammar school, we are taught America is the biggest and best of all countries. As adults and leaders within the defense community, that mind-set remains and leads to a thought process which automatically underestimates the value and contributions of foreign technology and

methods. Some call this "technological arrogance." Others call it the "not-invented-here syndrome." The world has changed and there are areas where others surpass us in technology, but this cultural attitude has not changed. Many insist the United States must always be the head on international cooperative programs, leading to the earlier European complaint that they are not true partners on cooperative programs. Americans just cannot seem to put aside their spirit of competition even when cooperation, not competition, would benefit them.

Evidence of European feelings about this cultural mind-set was seen in the June 1989 French-language *Air and Cosmos*. The article, "Cooperation, the Pros and Cons," reported that unanimity in favor of collaboration exists in Europe but, with few exceptions, the opposite is true in the United States. The article criticized a high-ranking U.S. Army general visiting their Ministry of Defense who said he couldn't see what cooperation would do for him.

Why Aren't We Smarter?

With such statements from high-ranking Service members, it is not surprising this mind-set flourishes in DOD. You see evidence of it in insidious ways, from the aforementioned oversight of cooperative programs in DOD Directive 5000.1 to sparsity of education within DOD on cooperative programs. For example, the premiere five-month Program Management Course at the Defense Systems Management College (DSMC) has 5 out of 391 total class hours dedicated to international cooperative program management. That is not enough for program managers to understand the

complex world of international cooperation. There is a two-week short course on multinational program management given by DSMC, but program managers taking that course in one year scarcely put a dent in the corps of acquisition program managers that could benefit from this training. Probably the worst acquisition education deficiency is the lack of courses for functional acquisition managers who must deal with different accounting, contracting, and logistics systems when they become involved in international cooperative programs. Some say that if the cultural attitude is to change, the DOD educational system will have to carry the burden by educating the community on the importance and intricacies of international cooperative programs. This action alone would not totally solve the problem. To effect cultural change in large organizations like the DOD, direction and enthusiasm must come from the top -- and that's not happening.

That Old Desire's Still There

Tie this negative cultural attitude and not enough education to the four problems causing internal mismanagement and the three disincentives mentioned by the Europeans, and one is amazed at how many transatlantic cooperative programs there have been. Despite problems, however, every European interviewed desired to continue working with the United States, albeit on changed terms. They are drawn to the United States' strong portfolio of programs and its overall technology lead. Most of all, Europeans are drawn to the large U.S. defense market and the chance to share in that market through cooperative programs.

Do Money Problems Stifle Desire?

If handled properly, this desire to remain involved in cooperative programs with the United States could benefit both parties. For that to happen, however, the United States must establish goals and restructure its approach to cooperative programs; otherwise, it risks an acceleration of European independence and a resulting separation of the two acquisition communities. With the U.S. defense budget declining (See Figure 4-2) and the U.S. Services desiring to maintain maximum programs, the time is ripe within the DOD to exploit the benefits of international cooperation.

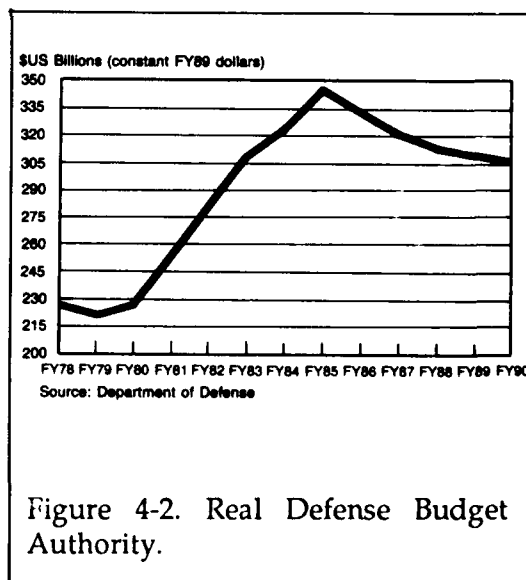


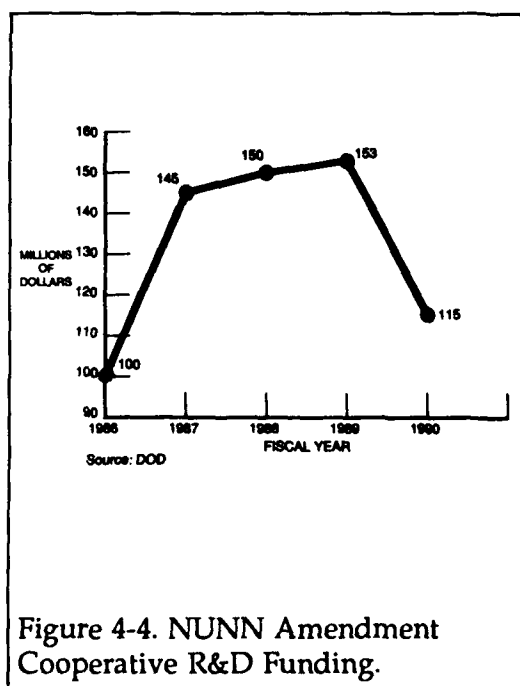
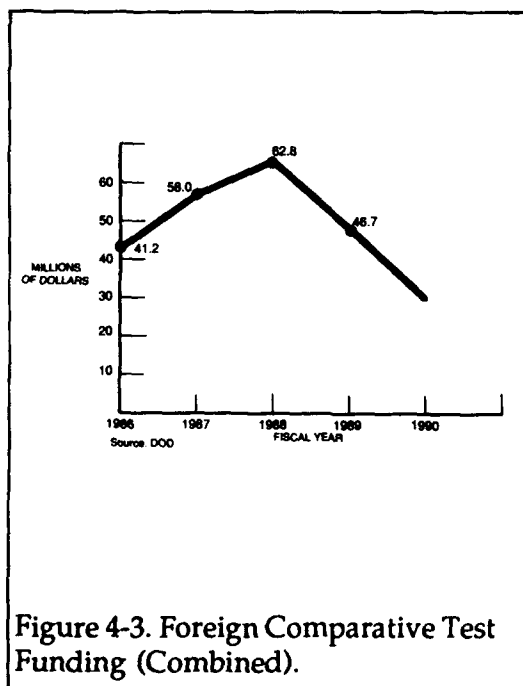
Figure 4-2. Real Defense Budget Authority.

Unfortunately, declining defense budgets can be a two-edged sword for cooperative programs. Rapidly escalating development costs and declining budgets tend to encourage cooperation. On the other hand, when defense budgets decline, nations, to include the United States, lean toward protectionism and hoard defense budgets for their industries. Figures 4-3 and 4-4 showing the decline in funds for cooperative programs hint that this protectionism trend is developing in the United States. This trend, coupled with other frustrating problems, must cause those who are working armaments cooperation and see collaboration programs' possibilities first hand, to feel like the comic strip character, Pogo, when he said: "We are surrounded by insurmountable opportunities."

A New Philosophy Arises

An alternative theory gaining in popularity considers the inevitability of the globalization of world industries and worldwide declines in defense budgets (Figure 4-5). This theory argues that due to globalization, interdependence among allied defense industries is here now, and due to declining defense budgets, no single nation will be able to sustain a fully independent defense industrial base.

Recognizing the inevitability of this globalization and interdependence among U.S. and allied defense industrial bases, the Defense Science Board in a December 1988 report, *The Defense Industrial and Technology Base*, recommended a rejection of the protectionist "Fortress America" concept as



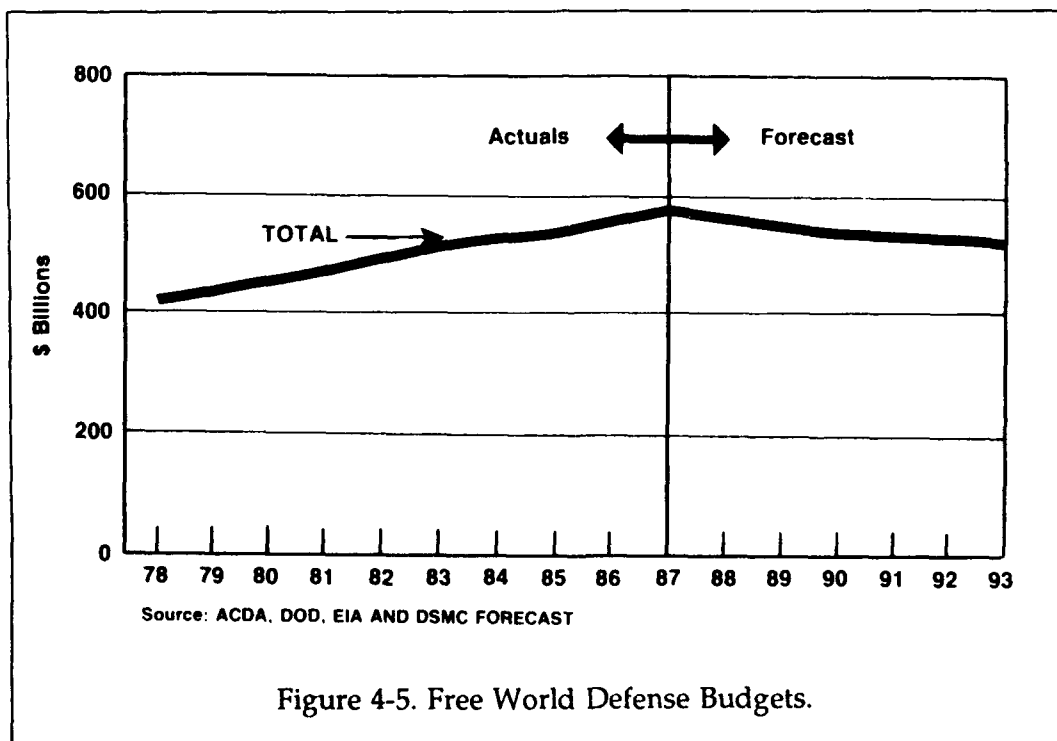
unrealistic. In "Bolstering Defense Industrial Competitiveness through International Cooperation," Defense '89, Robert C. McCormack, Deputy Under Secretary of Defense (Industrial and International Programs) wrote:

While total national defense self-sufficiency is a laudable goal, it is unrealistic. The global nature of today's international marketplace and realities of flattening or decreasing defense budgets dictate a more interdependent and streamlined approach to how and what we buy, with other nations participating in a

greater share of development and production.

Further evidence that some in the Department of Defense feel that withdrawal should not be the posture the United States adopts is contained in a February 1989 DOD report to the Congress, *Standardization of Equipment Within NATO*, which says:

The development of stronger European defense industries, however, must not become an obstacle to improved cooperation and should not become an excuse for the U.S., or any other nation to pursue restrictive trade practices.



Changes Required in Fundamental Program Management Procedures

It is clear from both statements there are benefits to be gained from cooperative programs. If these benefits are to be realized, fundamental changes to the way the United States and Europe manage cooperative programs will be necessary. Studies have shown that cooperative programs do not generally result in expected cost savings or shorter schedules (see for example the Rand Corporation Report, *Multinational Co-production of Military Aerospace Systems*, October, 1981, or "European Acquisition and the U.S.," *Defense Diplomacy*, Vol. 7, No. 6, June 1989). Other studies have pointed to these problems being caused by not adhering to successful program management principles (See Appendix L for the results of one study concerning critical success factors for international program management).

This basic failure of cooperative programs to realize their full potential has led to a negative reputation for cooperative programs putting them in a kind of Catch 22. If more successes occurred on cooperative programs, attitudes would change and if attitudes would change, more successes would occur. The same could be said about European attitudes and transatlantic programs. Obviously, the way to break this logjam is to change not only the aforementioned DOD policies and procedures that lead to problems on cooperative programs, but the fundamental program management principles that Europeans and Americans use once it is agreed that a cooperative program should be pursued.

One program management principle used to help prevent problems on domestic programs could be applied to cooperative programs. Through years of

trial and error, managers of DOD acquisition programs have found that a combination of "up-front and early-on" definitions of roles and responsibilities between contractor and government combined with stern discipline during the acquisition process are essential. The same principles should be followed between participants of cooperative programs.

Schedules, funding, and technical performance expected from a cooperative program should be agreed to between nations before they sign up to cooperative programs. Cooperative programs have even greater potential for requirements creep or funding slips than domestic programs due to the greater number of participants, so this concept is especially important.

Once an agreement is on schedule, technical performance and funding has been established, it should be documented and authority to execute the plan should be given to a single program office, composed preferably of an international staff to alleviate national concerns about protection of national interests. Full authority for the program office to execute the program is absolutely essential as rapid choices are necessary during management of any program to ensure that schedule and cost are not effected. Periodic reviews of program progress should be held by nations, but micromanagement must not be the rule. Too many cooperative program offices spend their time reporting to their many "bosses" rather than managing the program.

National objectives must be subordinated to program objectives if success is expected from cooperative programs. While such national concerns as work share, national technology enhancement and industrial base

improvement can often be accommodated within cooperative programs, a cooperative program will not be successful in terms of cost, schedule and technical performance if these objectives are pursued at program expense. A "total-package" concept of armaments cooperation involving the exchange of benefits or obligations outside a program's immediate area to balance program participation should be preferred over letting national objectives drive program objectives.

Cooperative programs should be pursued for the full potential they provide. Production and support concepts should be agreed upon and documented before development begins. Too often, potential cost savings during production and support (along with interoperability and standardization benefits) are ignored and not realized when nations go their own ways after development is complete.

Cooperative programs should be pursued between two, or at the most, three nations. As the number of participants increases, the difficulty of managing rises exponentially with a corresponding decrease in the likelihood of success.

Finally, cooperative programs should be entered into only if the above principals can be agreed upon and adhered to.

Yes, Virginia, There Are Cooperative Program Benefits

Clearly, there are many problems associated with cooperative programs, but there are tempting benefits to be gained if nations can change the way cooperative programs are managed. Rather than end

with the impression that cooperative programs are nothing but problems, a review of these benefits is in order.

Topping all lists of cooperative program benefits is cost savings, especially during the development cycle. Critics of cooperative programs point out that "requirements creep" caused by going to the highest common denominator of national requirements and the complex administration required of cooperative programs makes a cooperative program more expensive than a single domestic program. That probably is true, but as Sir George Edwards, former Chairman of British Aircraft Corporation, said: "The beauty of two countries cooperating on weapons projects and sharing everything 50-50 is that it only costs each two-thirds." In addition to saving development costs, there are substantial economic benefits possible during the production and support phases of cooperative programs.

Political alliance benefits, as discussed, are gaining in importance daily as the European Community dabbles in defense matters, and the two Germanys rush toward unification. Rather than withdraw into protectionism when NATO's usefulness and future direction is being questioned, and concerns about a Fortress Europe in the trade arena are being discussed, the United States should push cooperative programs to strengthen the transatlantic alliance. This strengthening would result not only through the resulting natural interdependence of defense acquisition communities, but through increased interoperability and standardization resulting from cooperative programs.

Strange Bedfellows

Cooperative synergism can occur in technology as well if programs are chosen to complement the technology bases of the participating nations. This benefit is gaining in importance as Europe's technology base improves. An example occurring in the commercial world is the recent joining of the Soviet aircraft firm Sukhoi with Grumman Gulfstream to design a supersonic business jet. The Soviet firm's expertise in the regime of supersonic flight, combined with Gulfstream's expertise in avionics and business jet marketing will benefit both parties. If the commercial world can accomplish productive partnerships between dissimilar concerns, defense communities should be able to do the same between allies.

Another benefit of cooperative programs is that they keep markets open. The United States always has been a proponent of open markets. Cooperative programs help keep markets open by enhancing cooperating firms' abilities to sell in the partners' home markets. If the United States desires unrestricted access to European defense markets, it must be remembered that Europe's changing attitudes, growing strength and unity will demand reciprocity.

Can We Afford Not to Change?

Perhaps it is time to take seriously the arguments of Ambassador William Taft, Permanent representative to NATO. At a conference sponsored by The French Center of Studies and Prospective Strategies in January 1990, he argued that global factors are inexorably driving individual nation's defense acquisition communities toward cooperation. He pointed out that, first,

declines in defense budgets will create a downsizing in each nation's defense industrial base to the point that no nation, not even the United States, will have a "full scope" defense industrial base. Second, due to economies-of-scale of closed defense markets, these same declines in defense budgets will drive the cost of weapons up. Third, when combined with spiraling costs of new technologies, these lowered economies-of-scale will result in weapon systems that no nation can afford. Finally, the globalization of industries created by the ongoing international mergers and acquisitions (Chapter 3) will result in a Western technology base rather than national technology bases. Ambassador Taft called for a recognition of these global changes; a broader, more open Western arms market; and increased cooperation to negate these serious impacts and ensure the collective defense of Western allies.

Proactive, Not Reactive This Time?

To lessen such impacts, the United States must change many approaches to cooperative programs. The three frustrating economic disincentives mentioned by the Europeans, the four problem areas of internal DOD management, the cultural attitude toward cooperative programs, U.S. protectionist tendencies concerning allied cooperative programs, and fundamental program management principles on cooperative programs must change. Realities beyond DOD control are dictating change. Rather than ignoring reality and resisting change, DOD should take a proactive approach to provide the greatest overall benefits for future United States security. Necessary changes will be difficult. The DOD policies, management structure and thought processes do not change easily.

Without changes, economic structural disarmament will run rampant and United States and allied security will decline. The price of change will be high but, the price of not changing will be higher.

The Increased Competitiveness of the European Defense Industry

On the Move

To those Americans who have grown accustomed to dealing with relatively compact European defense firms, the recent changes in the European defense industry must be suprising. Consolidations are creating European defense companies nearly as large as the top U.S. defense firms have become commonplace. Meanwhile, the Europe 1992 program is giving these new European giants a shot in the arm with liberal merger and acquisition policies, improved infrastructure plans, and dual-use technology research programs. The Independent European Program Group (IEPG) is doing its share by developing plans for improved economies-of-scale and defense technology. As these consolidations and industrial base improvements take place, industrial overcapacity, declining defense budgets and more competitive open markets are combining to wean out weaker players. The result of all these changes should be a set of larger, more capable European defense firms with a stronger, more efficient industrial base from which they can launch a drive for the world's defense business. Clearly, Europe's defense industry is on the move and its competitors had best take notice.

United States defense firms, champion competitors of the past due to superior technology and economies-of-scale made possible by the large size of the U.S. defense market, are nervously eyeing these changes and worrying about losing market share and profits to this improved version of the European defense industry. Even those not in industry are becoming worried. While Europe produces reports like *Towards a Stronger Europe*, U.S. government offices and think tanks are countering with *Bolstering Defense Industrial Competitiveness and Holding the Edge*. Both sides seem to be steeling themselves for a future when the heat of competition for defense business will evolve from merely red-hot to incandescent.

What Is Competitiveness?

To most observers, it is intuitively obvious that recent and planned changes in the European defense industry will produce a set of more formidable competitors. But exactly how do the Europeans plan on improving their defense industry base, and are there weaknesses in their concept? Will the changes actually improve European defense industry competitiveness? Answers to such questions could determine U.S. defense firms' competitive strategies and future government policies.

Before attempting to answer these questions, "competitiveness" should be clearly defined. Webster's bases its definition on the ability to enter into a rivalry. Notwithstanding Webster's generic correctness, a stricter definition appropriate to competition among national industries would be more useful for this effort. The

President's Commission on Industrial Competitiveness and other recent studies settled on this definition: Competitiveness for a nation is the degree to which it can, under free and fair market conditions, produce goods and services that meet the test of international markets while simultaneously maintaining and expanding the real incomes of its citizens. Note that this definition does not take into consideration the skewing of market forces through government intervention. National protectionism, common in defense markets, influences the ability of defense firms to sell in another nation's defense market; however, removal of national protectionism from consideration during this examination is appropriate, not only because the future course of nationalism is difficult to predict, but also because its removal will give a truer picture of the effectiveness of recent and planned changes in the European defense industry. By removing national protectionism from consideration, this examination will, therefore, not be a prediction of whether European firms will sell more, but whether they could produce better goods which would sell more if national protectionism were not involved. Such a prediction could be especially useful and applicable in the Third World defense market where, generally speaking, national protectionism is generally not an issue.

How To Measure It

With the definition of competitiveness out of the way, it is now appropriate to pick a method for analyzing national industry competitiveness. Past methods have centered around the theory of "comparative advantages" which says that countries export commodities whose production requires relatively intensive use of productive resources found locally in relative abundance. In other words, a

nation naturally takes advantage of its resources (raw materials, technology, cheap labor, etc.) that are superior to other nations' resources, and then exports those resources at a cheaper price than other nations can produce them. This relatively simple theory has begun to break down with recent changes in the world market place. It fails to explain why the United States, with its relative abundance of engineers, capital, and skilled labor, has begun to lose market share in machine tools and semiconductors. Nor does the comparative advantages theory by itself explain why South Korea, with relatively small capital resources, is successful in such capital intensive industries as steel and shipbuilding.

There is, however, a more comprehensive theory emerging that takes the comparative advantages concept a giant step further. Dr. Michael Porter, a Harvard Business School professor and leading expert on national industrial competitiveness, explains in his new book, *The Competitiveness of Nations*, that internationally competitive industries have four characteristics. Quoting from his book, these characteristics are:

-- *...sources of competitive advantage differ widely among industries...*

-- *...global competitors often perform some activities in the value chain outside their home country*

-- *...firms gain and sustain competitive advantage in international competition through improvement, innovation, and upgrading Innovation...includes both technology and methods, encompassing new products, new production methods, new ways of marketing, identification of new customer groups, and the like...*

-- ...firms that gain competitive advantage in an industry are often those that not only perceive a new market need or the potential of a new technology but move early and most aggressively to exploit it.

These concepts send a message to governments that one of the best ways to help a defense industry maintain international competitiveness is to adamantly demand innovation and improvement. In an era of declining defense budgets, it indicates that relaxing of schedules could actually harm a defense industry's competitiveness. If one were concerned about saving money during times of tight budgets while maintaining competitiveness, it would be better to demand completion of developments on schedule and delay production rather than stretch both development and production.

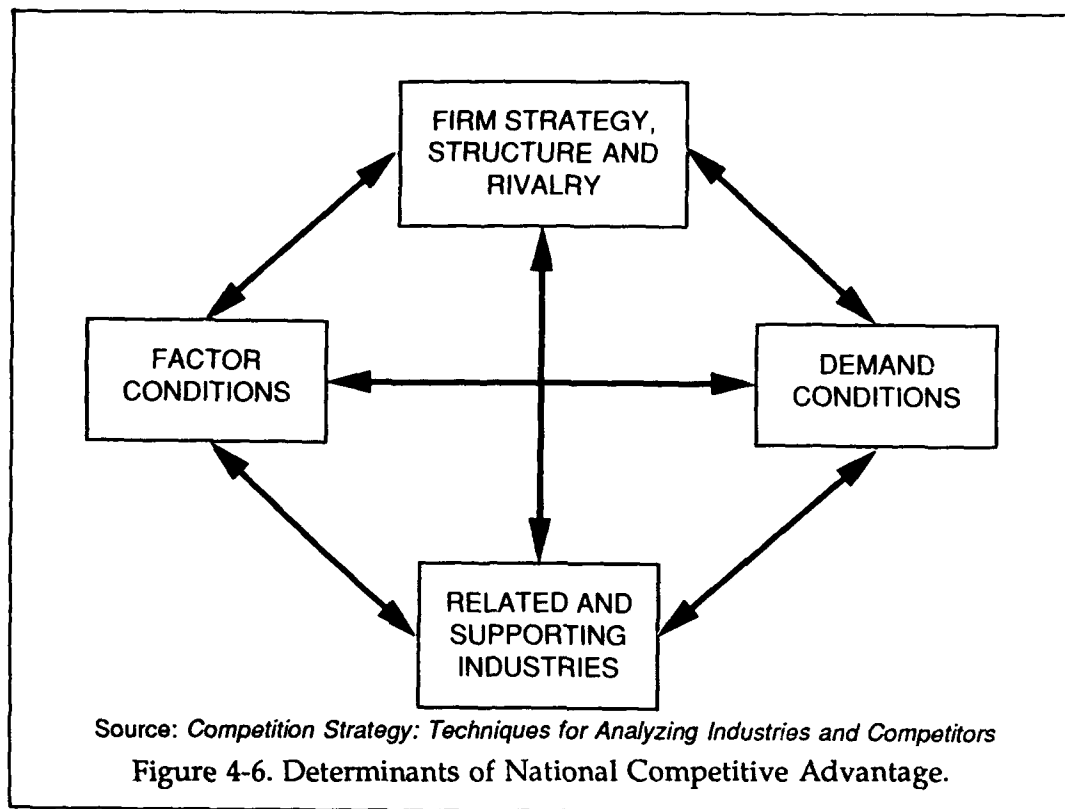
Another defense-related concept these findings argue against is the protectionism associated with the Western World's defense markets. Protectionism can keep industries complacent and does not contribute toward innovation. In addition, protected and separated defense markets fly in the face of the second premise that internationally competitive industries use suppliers outside their nation to improve their competitiveness. It's not only Europe that follows this concept of protected and separate defense industries. There are many in the United States who feel that a protected, self-sufficient defense industry is necessary for political and security reasons. Dr. Porter's findings argue that protectionism and self-sufficiency will not allow a nation's industry to take advantage of latest technology or lower-cost, higher quality suppliers in other nations, resulting in an industry that is not able to produce goods that are as competitive as goods produced by industries using multinational sources.

In other words, to produce the best possible, most competitive defense equipment, a defense firm should use the best suppliers, no matter which nation the supplier belongs to. Strict adherence to this concept is impractical as far as defense is concerned unless the supplier is allied to the buyer during times of conflict. Perhaps in these days of globalized and interdependent economies with the best suppliers often residing in other nations, "national self sufficiency" and "best possible defense equipment" have become contradictory terms, and instead of self sufficiency within a nation, self sufficiency within strong alliances should now be the goal of defense planners.

Four Determinants

Dr. Porter goes on to explain that certain nation's industries gain competitiveness through four conditions that exist within a nation. They are: **Factor Conditions**--availability of the resources needed for production of a good or commodity (e.g., raw materials, skilled and educated labor force, transportation infrastructure, etc.); **Demand Conditions**--nature of home demand for an industry's product; **Related and Supporting Industries** Conditions--presence or absence in the nation of internationally competitive supplier and related industries; **Firm Strategy, Structure and Rivalry** Conditions--company goals, strategic structures, and the intensity of rivalries within the industry in question.

These four determinants interact within an industry's national environment as a system and tend to strengthen each other (Figure 4-6). Improvements in the strength of one determinant often inspire improvements in others, and when this



interplay among the determinants is combined with specific competitive advantages within each determinant, international competitiveness for a national industry can be established. An examination of interplays of these determinants and the competitive advantages within them can be used to reveal weaknesses or strengths and help determine government or business strategies for improvement.

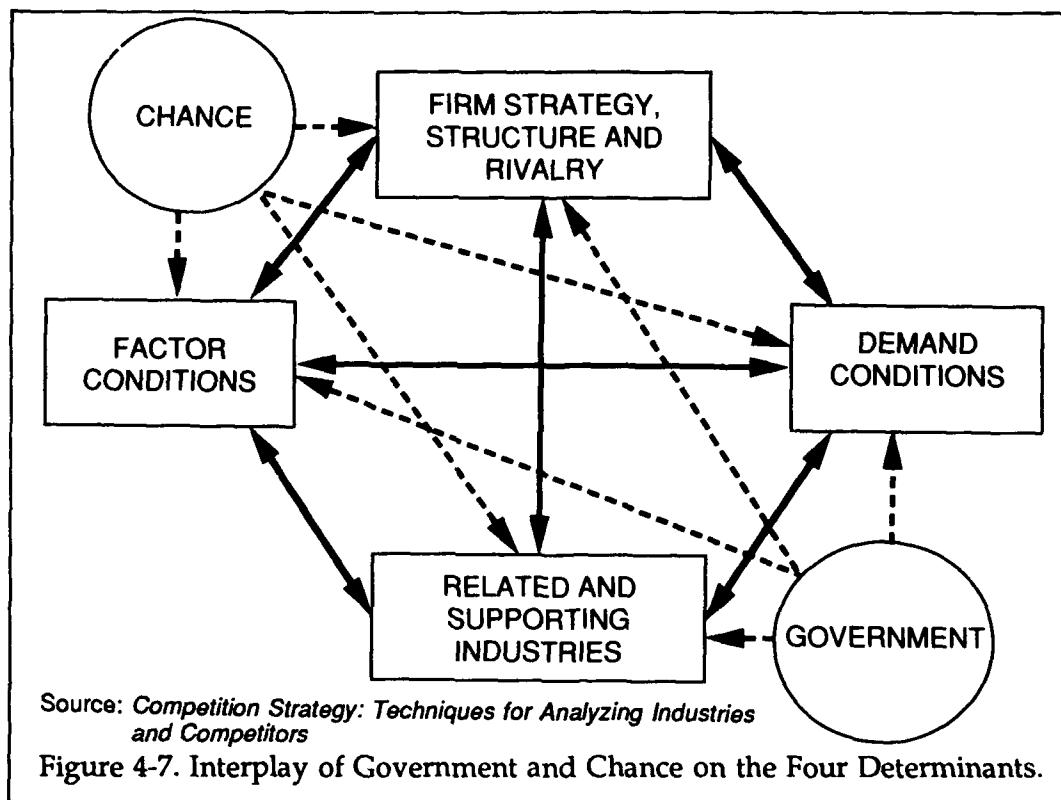
Two More Players—Government and Chance

It should be noted that government is not one of the four determinants but is instead an influence on all four. Another factor influencing all four determinants is chance. A more complete chart (See Figure

4-7) shows the interplay of government and chance on the four determinants.

Chance, or luck, exists in the world of international competitiveness and can unexpectedly influence national industries' competitiveness. The oil shock of the '70s was an unpredicted chance event that improved the competitiveness of the Japanese automobile industry with its fuel-efficient automobiles. World War II was an unplanned event that helped build the U.S. defense industry to the premiere position it enjoys today.

One is tempted to consider the predicted decline in worldwide defense budgets (due to such factors as the fall of the Berlin Wall, an accompanying collapse of the Warsaw Pact and declining



availability of funds in Third World economies) as a chance event that could negatively impact European defense industry's competitive position. A decline in European defense budgets will certainly affect the level of sales in their home market; however, the same phenomena should similarly impact the U.S. defense industry, the European defense industry's chief competitor. As of this writing, it is too early to predict the true impact of defense budget declines in Europe and America as debates continue to rage in the U.S. Congress and European parliaments regarding this issue. Certainly this area should be monitored by government and industry analysts because a greater rate of decline in either market could easily affect the competitive balance of the two defense industries.

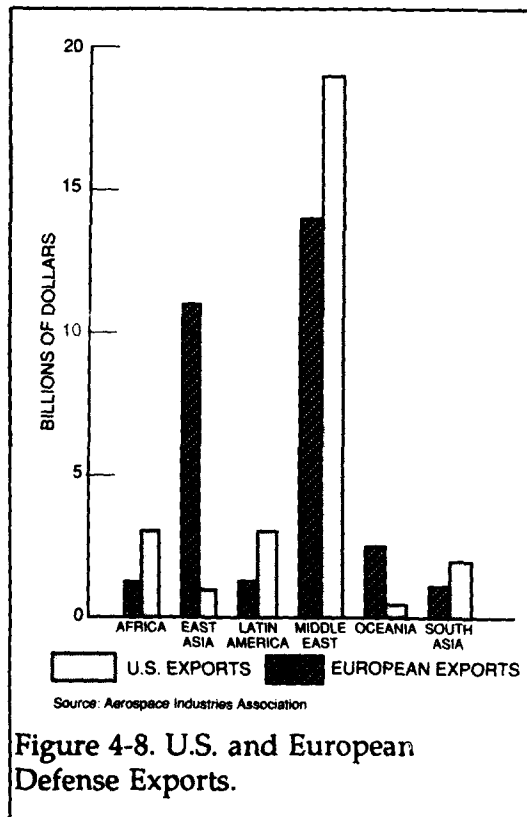
There is, however, one area where this chance event results in a competitive advantage. That is in the Third World market for defense goods which, as our definition attests, is included in the focus of this examination. Because both European and U.S. demands for defense goods will be declining, the Third World market, even though it too will be declining, will increase in importance to both competitors. The European defense industry has always turned to export markets to increase its economies-of-scale. It is, therefore, more practiced and experienced at selling in this market segment. European defense firms have traditionally taken a long-term approach toward establishing themselves in the export business, more so than U.S. firms and, as a result, have been building

relationships with buyers for years (See Figure 4-8). This strategy, when combined with U.S. export restrictions on defense sales and European government support and encouragement of defense exports through such programs as government financing for Third World buys of European defense items, results in a competitive advantage for the European defense industry in this market segment.

Survival of the Fittest

One of Dr. Porter's most important findings concerning the four determinants deals with the interplay between Demand Conditions and Strategy, Structure, and Rivalry Conditions. Data from more than

100 international industries show that strong rivalries within a nation's industry, when combined with demanding customers in the home market of a nation, build strong international competitors; "The hotter the heat, the harder the steel" concept, so to speak. This aspect of interplay between these two determinants helps explain the strength of the Japanese consumer electronics industry. Japan's home market for consumer electronics has sophisticated and demanding consumers pushing Japanese electronics firms toward innovation. Japanese consumers, for example, demanded small television sets instead of console televisions of the '60s to save space in small apartments. This consumer demand, made practical by a number of advances in miniaturization throughout the technology base of the world, pushed the Japanese electronics firms toward miniaturization in consumer electronics and the result is history in the world of international trade. If a Japanese consumer electronics firm can satisfy such demanding home market consumers and live to survive strong rivalries and competition within its own national industry, then it is miles ahead when entering another nation's market. Another example is the German automobile industry. Germans are extremely demanding customers for automobiles. Their national character demand precision and quality, and their national law of an unlimited speed limit on the autobahn and German driving habits demand high-performance cars. This demand, when combined with the intense rivalry of BMW, Audi and Mercedes within Germany, has produced automobiles that are considered the cream of the crop.



Do Favors Help?

This synergistic interplay between Demand Conditions and Firm Strategy, Structure, and Rivalry Conditions has profound implications to the European defense industry. It indicates the IEPG concept of *Juste Retour* that "guarantees" the Developing Defense Industries (DDIs) of Portugal, Turkey, and Greece defense business equal to the amount of defense dollars they spend will not help the DDIs, but will instead reduce rivalry and thereby create a detriment to competitiveness. It would be better for the IEPG to concentrate on helping these nations develop resources needed for Factor Conditions (e.g., infrastructures and skilled and educated labor) or by helping them gain access to related and supporting industries than it would be to lessen competitive pressures on the DDIs.

Method of Evaluation

With these concepts in mind, we can turn to the recent and planned changes in the European defense industry, and determine how those changes impact the competitiveness of the European defense industry. Because some changes are not yet fully implemented, it would be helpful to note whether changes have occurred or are pending. To accomplish this, a matrix will be used (See Figure 4-9 for sample matrix). Note that the influencing factor, government or chance, will be indicated as applicable.

Only the recent and pending changes in the European defense industry mentioned elsewhere in this study will be examined. To keep repetition to a minimum, there will be no discussion of the changes except to explain their

placements and impacts as necessary. Interested readers may review the description of the changes brought about by the IEPG (Chapter 2) and Europe 1992 (Chapter 3) during the analysis as appropriate.

Before beginning, it should be noted (with apologies to our European friends) that although Europe is certainly not a nation, it is being treated as such during this examination to determine if the IEPG's plan to combine national defense markets into a European defense market will improve the competitiveness of Europe's defense industry. A detailed examination of all factors affecting the competitiveness of the European defense industry, combined with the recent and pending changes observed in this study, is unfortunately beyond the scope of this effort, but does provide potential for an interesting future effort. Another interesting and worthwhile effort would be a full study of the competitive benefits and advantages of the European and Pacific Rim defense industries as compared to those of the U.S. defense industry.

Changes In Competitiveness: A Tally

An examination of changes applicable to the first determinant, Factor Conditions, shows that Europe 1992 fosters **improvements** to competitiveness (compared to the U.S. defense industry) rather than clear-cut competitive advantages (See Figure 4-10). This should come as no surprise since the Europe 1992 program was not designed to produce significantly better infrastructures or technology than those possessed by the United States. Rather, these improvements were designed to put such factors on a

"DETERMINANT"

CHANGES (IN EUROPEAN DEFENSE MARKET OBSERVED DURING THIS STUDY)	IMPROVEMENT IN COMPETITIVE POSITION	DETRIMENT TO COMPETITIVE POSITION	COMPETITIVE ADVANTAGE
CHANGE (WITH GOVERNMENT ORGANIZATION INFLUENCE IN PARENTHESES)			

(P) = PENDING CHANGE
(A) = ACCOMPLISHED

Figure 4-9. Sample Matrix.

FACTOR CONDITIONS			
CHANGE	IMPROVEMENT IN COMPETITIVE POSITION	DETRIMENT TO COMPETITIVE POSITION	COMPETITIVE ADVANTAGE
FREER MOVE- MENT OF PEOPLE, GOODS, AND SERVICES, (EUROPE 1992)	(P)		
INFRA- STRUCTURE IMPROVEMENTS (EUROPE 1992)	(P)		
COORDINATED R&D PROGRAMS (EURAM ESPRITE, EUCLID, ETC) (EUROPE 1992 AND IEPG)	(A)		
COMMON INDUSTRIAL STANDARDS (EUROPE 1992)	(A)		
REMOVAL OF BANKING RESTRICTIONS (EUROPE 1992)	(P)		

(P) = PENDING

(A) = ACCOMPLISHED

Figure 4-10. Factor Conditions.

more equal level with those in the United States or Japan so that European industries could be in a position to more equally compete with other nations' industries. It is worth noting that only the change in coordinated research is presently implemented, and that years may be necessary before improvements in the other areas are fully realized.

Changes in the Related and Supporting Industries Conditions (Figure 4-11) will also be years in the making but, when complete, will improve the European defense industry's competitive position to more nearly that of the U.S. defense industry. As would be expected, related and supporting industries should benefit from the same Europe 1992 changes from which the core European defense industry will receive benefits.

It is interesting that when the Europe 1992 schedule was in question, due in part to the massive changes in Eastern Europe, Francois Mitterrand, president of France, recognized that the banking industry could be used to pull industries together and galvanize the move toward economic unity. At a tense meeting in Paris in November 1989, he was able to push that improvement through.

Not only does the removal of banking restrictions galvanize the move toward European unity, it has the potential of providing the European core and related defense industries with a competitive advantage. Changes in the banking sector, including the relaxation of financial rules and freer movement of capital with Europe, can be expected to result in lower capital costs for European industries than those available on the U.S. side of the Atlantic.

The Firm Strategy, Structure and Rivalry Conditions determinant (Figure 4-12) is another area where Europe 1992 has had substantial influence by allowing the mergers and acquisitions creating larger European defense firms. Europeans, however, are taking the merger concept a step further and are forming numerous project-based consortia allowing the sharing of technology and the creation of symbiotic relationships in areas of individual firm expertise (See Chapter 3). This approach, not dissimilar to the Japanese industrial approach of interrelated holdings and project arrangements, gives Europeans an advantage over U.S. defense firms. Defense firms in the United States, until recently, were not forced into such synergistic risk-reduction arrangements because large U.S. defense budgets were enough to support all those in the defense business. Now with declining defense budgets and ever-increasing costs of developing new technologies, U.S. firms are taking a cue from their European and Japanese counterparts and are beginning to form such relationships; however, unless antitrust laws are relaxed, this trend cannot be expected to produce interrelationships as extensive as those in Europe.

The last determinant, Demand Conditions, contains the most detrimental of the planned changes to the European defense market (Figure 4-13). As observed earlier, *Juste Retour* may be detrimental to the competitiveness of Europe's Developing Defense Industries (DDIs). It could also harm competitiveness of the more developed nations' industries because some force, other than free and fair market forces, would be determining where defense business is going.

**RELATED AND SUPPORTING
INDUSTRIES CONDITIONS**

CHANGE	IMPROVEMENT IN COMPETITIVE POSITION	DETRIMENT TO COMPETITIVE POSITION	COMPETITIVE ADVANTAGE
FREER MOVE- MENT OF PEOPLE, GOODS, AND SERVICES, (EUROPE 1992)	(P)		
INFRA- STRUCTURE IMPROVEMENTS (EUROPE 1992)	(P)		
COORDINATED R&D PROGRAMS (EURAM ESPRITE, EUCLID, ETC) (EUROPE 1992 AND IEPG)	(A)		
COMMON INDUSTRIAL STANDARDS (EUROPE 1992)	(A)		
REMOVAL OF BANKING RESTRICTIONS (EUROPE 1992)	(P)		

(P) = PENDING

(A) = ACCOMPLISHED

Figure 4-11. Related and Supporting Industries Conditions.

FIRM STRATEGY, STRUCTURE AND RIVALRY CONDITIONS

CHANGE	IMPROVEMENT IN COMPETITIVE POSITION	DETRIMENT TO COMPETITIVE POSITION	COMPETITIVE ADVANTAGE
THIRD WORLD MARKET EXPERTISE (CHANCE)			(A)
CRITICAL MASS FIRMS WITH EXTENSIVE CONSORTIA ALLIANCES (EUROPE 1992)			(A)
DIVERSIFICATION TO PROTECT BOTTOM LINE (EUROPE 1992)	(A)		

(P) = PENDING
(A) = ACCOMPLISHED

Figure 4-12. Firm Strategy, Structure and Rivalry Conditions.

DEMAND CONDITIONS			
CHANGE	IMPROVEMENT IN COMPETITIVE POSITION	DETRIMENT TO COMPETITIVE POSITION	COMPETITIVE ADVANTAGE
ECONOMIES OF SCALE THROUGH COMMON REQUIREMENTS, AND MORE UNITED MARKET (IEPG) <i>JUSTE RETOUR</i> (IEPG)	(P)	(P)	

(P) = PENDING
(A) = ACCOMPLISHED

Figure 4-13. Demand Conditions.

Government Influence

An examination of all the matrices reveals that the Europe 1992 program is playing a highly influential and positive role in improving the European defense industry's competitiveness. Its role as a government force will provide improved infrastructure efficiencies in the determinants of Factor Conditions and Related and Supporting Industries Conditions. Not the least of Europe 1992 contributions is the potential competitive advantage afforded by lower capital costs. In the Strategies, Structure, and Rivalries Conditions determinant, the Europe 1992 program's liberalization of previously inhibiting national merger laws, allowing formation of firms with the critical mass necessary to compete on a world-class level, is another important contribution. The result of these improvements in these three areas will be larger, more efficient, and more competitive defense firms.

Another important Europe 1992 contribution to European defense industry competitiveness is the establishment of dual-use technology research programs. Civilian technology of the type Europe 1992 is sponsoring is increasingly driving military technology. The defense business is highly dependent on such high technology, and the impact of improvements in technology on defense industry competitiveness should not be underestimated. If the Europe 1992 research programs, combined with the IEPG's EUCLID research program and the 19-nation European EUREKA research program are successful, Europe's defense firms should have technology approaching that now enjoyed by the U.S. defense industry.

Not only is Europe 1992 proving to be a positive government force for the above improvements, but its well-publicized successes are providing inspiration behind the IEPG drive to open European defense markets. The IEPG recognizes that just opening defense markets and improving technology will not be enough to improve the European defense industry's competitiveness; therefore, it also is working to improve Europe's defense economies-of-scale by unifying government demand through common requirements and cooperative programs.

Are There Weaknesses?

Whether the IEPG is successful at opening and unifying Europe's defense markets and creating economies-of-scale approaching those of the United States remains to be seen. Emotions generated when dealing with national sovereignty and security are powerful forces, and will be difficult for the IEPG to overcome. Market forces, however, also are powerful. As seen with the Europe 1992 program, they have the ability to overcome nationalism when economic survival is at stake.

Even with integrated defense markets and coordinated requirements, European defense firms will find it difficult to approach U.S. economies-of-scale. The lower economies-of-scale of the European defense markets is one reason Europeans have so diligently pursued Third World Markets. By selling in the Third World, European defense firms not only gain profit but help improve their economies-of scale. In the past, U.S. economies-of-scale have

often been U.S. defense firms' strongest ace in the hole during competition for the world's defense business. The message here is clear for Europeans: If the IEPG is not successful in opening and unifying Europe's separated defense markets, all the other improvements will have a difficult time counter balancing the disadvantage of relatively low European economies-of-scale.

The previously mentioned *Juste Retour* concept of the IEPG is another weakness of the European plan for improving competitiveness of the European defense industry. Members of the IEPG argue that the concept is necessary to get lesser-developed industries on their feet. Notwithstanding previously mentioned concerns about *Juste Retour*, Europeans should be careful here. Habits are hard to break and industries favored by this concept could be particularly resistant to dropping *Juste Retour* when the time comes.

Formula for Improvement

The discussion on *juste retour* and the importance of creating improved economies-of-scale answers the question about weaknesses in Europe's approach to improving their defense industry's competitiveness. Generalizing and adding the benefits from the matrices can reveal the answer to the other question: "Exactly how do Europeans plan to improve their defense industry's competitiveness?" (See Figure 4-14.)

Will this formula allow the European defense industry to match U.S. defense industry competitiveness? Without going into a detailed explanation of the U.S. defense industry's competitive advantages, they have been: economies-of-scale from a large, relatively united U.S. defense market, application of competition concepts when choosing suppliers of defense equipment, superior technology coordinated through DOD research and development programs, and large defense firms within a relatively efficient infrastructure. Compare those to the formula in Figure 4-14. Those are the specific areas Europeans are trying to improve.

As stated previously, it is doubtful whether Europe's defense industry will be able to completely match the U.S. defense industry's economies-of-scale or, for that matter, the level of U.S. defense technology. Even with the European plan for coordinated technology research, the United States can be expected to outspend Europe in research. If the United States spends her research monies in a wise and coordinated fashion, it will be difficult for Europe to surpass the U.S. technology base. There are some, however, who say that won't happen because the lack of a U.S. technology plan will prevent U.S. monies being spent in the wisest fashion on the technologies that really matter. However the United States spends its research

COMMON REQUIRE- MENTS	+ OPEN DEFENSE MARKETS	+ COORDINATED RESEARCH	+ LARGER, MORE EFFICIENT FIRMS	+ IMPROVED SERVICES	= IMPROVED EUROPEAN DEFENSE INDUSTRY COMPETITIVENESS
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Figure 4-14. Formula.

monies, Europe's technology can be expected to more nearly approach the level of U.S. technology.

While the U.S. defense industry should continue to enjoy its perennial advantages in economies-of-scale and technology, the European defense industry will have advantages of its own with lower capital costs, synergistic consortia relationships, and superior Third World market experience and government support. Add these advantages to the improvements in other areas and the answer is clear. As Europeans complete their planned improvements, the U.S. defense industry will have a very formidable competitor on its hands.

There is, in fact, some evidence to indicate that the accomplished improvements are already becoming effective. Figure 4-15 shows that since 1983 the defense balance of trade ratio between the United States and Europe declined from a ratio of 8.2 to 1 to 1.7 to 1. There are other factors affecting this ratio decline, but some of the decline may be attributed to improved competitiveness of the European defense industry.

A New Wind

As if the U.S. defense industry did not have enough to worry about with projected declines in the U.S. defense budget, European competitors now have a plan that should put them on a much higher competitive level. This should come as no surprise. It is natural and to be expected that governments and industries alike will try to improve their competitive positions. For years, the United States has been pressuring Europe to improve the defense industries of Europe so that Europe

can share more easily in the common defense burden of NATO. The fact that our Allies are in the process of improving their industries should be applauded rather than looked upon with suspicion.

If America expects to continue to reap benefits and security from her own world-class defense industry, our companies must trim their sails for this new wind of change. Their sights must be on winning through relentless innovation. Just surviving won't be good enough.

The DOD can help by examining policies that may be detrimental to U.S. defense industry competitiveness; technology transfer and Third World export policies are two mentioned elsewhere in this study and worthy of examination. In addition, with the rest of the world's rapidly improving technology base, it's becoming more important than ever that DOD wisely choose which critical technologies it will pursue. In these days of worrisome trade-balance deficits, declining industrial competitiveness and eroding leads in technology, we cannot afford to lose economic and strategic benefits gained from a U.S. defense industry strong enough to contribute nearly 4 percent of our total exports and lead the world in producing the best weapon systems in the world.

Loss of U.S. Defense Exports

The U.S. defense industry is facing tremendous challenges. Requirements are being turned upside down due to the Conventional Forces in Europe (CFE) agreements. Worldwide defense budgets are spiraling downward because of changes in the Warsaw Pact and declining Third World economies; and defense industries

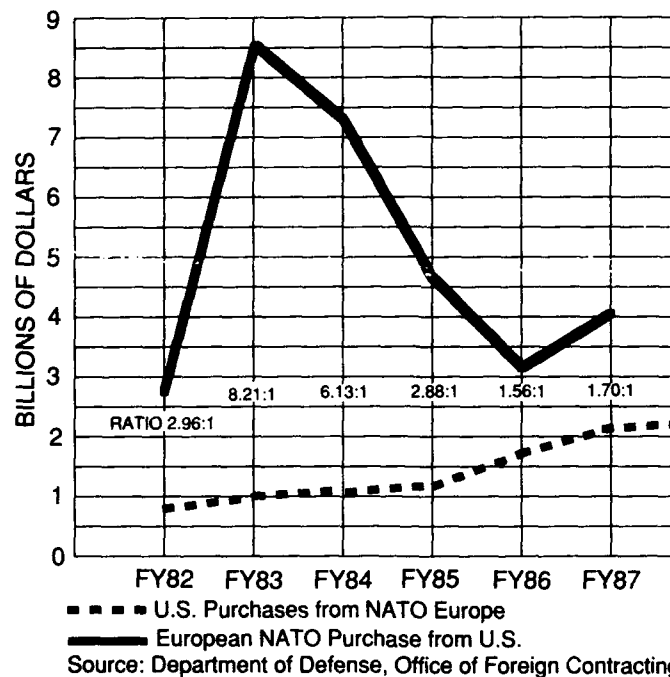


Figure 4-15. "Defense Balance of Trade Ratio, U.S. and Europe."

throughout the world are restructuring due to overcapacity. As worried U.S. defense industry executives scramble to adjust to these changes, competitors from Europe to the Pacific Rim are busy improving their competitive positions in preparation for the race toward the world's remaining defense business.

The European defense industry, with its improved efficiencies and competitive advantages, can be expected to be at the head of the line in this race for its share of business in the U.S., European, and Third World defense markets. In Europe, as industries seek to reap the benefits of their industry restructuring, there will be considerable political and economic pressures for European defense firms to produce a larger share of Europe's defense equipment. While politicians will

worry about the impact of declining budgets on economies and jobs, European procurement officials will be pleased to find new defense industry efficiencies and economies resulting from Europe 1992 and IEPG changes. With Europe's technology base improving, European military members will find they no longer have to turn to U.S. equipment to enjoy the latest in defense equipment.

In the Third World, European defense firms with advantages of government-sponsored loans for defense buys and fewer export restrictions will bring these improved technologies and economies-of-scale to the table to entice buyers. In the United States, procurement officials may find that a trend toward pan-European programs means a loss of

the U.S. defense industry market share in Europe and reduced economies-of-scale.

These changes point directly to a decline in export sales by the U.S. defense industry. Most analysts have been concerned with the considerable impacts of declining U.S. defense budgets and changing requirements. Impacts caused by loss of U.S. defense industry sales overseas, however, should not be forgotten. Traditionally hovering between 10-15 percent of total U.S. defense sales, exports can no longer be considered a guaranteed improvement to U.S. economies-of-scale or a buffer for low profits in the defense business.

Using a model developed at the Defense Systems Management College (DSMC) to determine the impact of perturbations in DOD outlays on unit cost, estimates for an export decline were made and unit cost impacts were calculated (see Appendix G). As one would expect, the model indicated an increase in unit costs due to lost export sales, with a corresponding budget increase required to maintain the same number of units. For

example, if U.S. defense exports are reduced by 50 percent in 1992 due to the above changes in world defense markets, a corresponding increase in unit costs of 2.6 percent can be expected. To buy the same number of units with a 2.6 percent increase in unit costs, the DOD will have to ask for a budget increase of \$3.7 billion. While \$3.7 billion is not much compared to total defense outlays budgeted for defense equipment in 1992 (\$142.1 billion) it is, nevertheless, a substantial amount in today's severely constrained fiscal environment. To put this figure in perspective, it represents approximately enough to buy three Trident submarines, two tank battalions or two fighter wings.

The implications are clear. In addition to reduced buying power from declining defense budgets, DOD can expect an additional loss of buying power caused by reduced U.S. defense exports. To lessen these impacts, the DOD must do all that it can to ensure that its policies do not hinder U.S. defense industry participation as a player in the rapidly globalizing defense markets.

"A phenomenon noticeable throughout history regardless of place or period is the pursuit by governments of policies contrary to their own interests. Mankind, it seems, makes a poorer performance of government than of almost any other human activity."

-- Barbara W. Tuchman, March of Folly

CHAPTER 5

Conclusions and Recommendations

Introduction

When the clenched fist of the Soviet Union began losing its grip on the Warsaw Pact, a new political and economic world order began to emerge. Eastern European nations started tossing aside communism and professing a newfound taste for capitalism. The two Germanys began discovering a 40-year dormant desire for unification. Even the Soviet Union is getting into the act. Unheard of agreements to cut back on Soviet arms are occurring while the Kremlin struggles to convert its failing, centrally controlled economy into one based on market forces.

As these surprising changes dominate headlines, the European Community's Europe 1992 program is quietly pulling together Western European states into the world's largest trading bloc, and other Western nations are scrambling to establish new trading relationships, ranging from the free trade agreement between the United States and Canada to more open and accessible Japanese markets. It is an exciting time -- a time of hope and promise. But it is also a time for adjustment.

Adjustments required by the Department of Defense because of these changing world orders will be tremendous. New relationships and arms control agreements are forcing budget cuts, base closures and reductions in force levels. Along with smaller forces will come new requirements for weapon systems as Services begin to concentrate on surveillance capabilities and highly mobile, quick-strike forces.

While DOD is preoccupied with which fighter wings to shut down and which ships to decommission, global economic forces are creeping in on a second front and changing the way DOD will do its business in the future. Used to dealing with a self-sufficient domestic defense industry, DOD is finding itself increasingly faced with multinational suppliers as a result of increased competitiveness of other nations' industries and rapidly globalizing economies. Probably the most far-reaching and influential of these economic changes from DOD's viewpoint are those of its closest ally and largest trading partner: NATO Europe. Although Europe's drive toward a fully united and integrated economy is not yet complete, widely supported

movements centered around the European Community's Europe 1992 program point toward a restructured European defense industry, improved European infrastructures, more competitive technologies, and open defense markets within Western Europe. These changes can be expected to result in a loss of U.S. defense industry competitiveness, lowered U.S. defense sales to Europe, a reduction in transatlantic cooperative programs, and an increase in unit costs of U.S. defense items. No longer can DOD afford to concentrate only on political changes and internal restructuring caused by Defense Management Reviews and administration changes. Implementation of a broader based strategic approach to economic changes and armaments collaboration would represent enlightened self-interest. To do otherwise, or not act at all, could be the path of folly.

Conclusions

(1) Europe 1992 can be expected to successfully achieve its goal of economic integration. Accelerated legislative performance has created confidence and anticipation within the European Community's business community. Business strategies for new, open markets are being implemented. The CEOs of Europe are betting on Europe 1992 and have initiated a massive and unprecedented industry-wide consolidation throughout Europe, expending tremendous resources in the process. These investments will eventually act as a compelling forcing function for progress on some of the more difficult social issues surrounding full economic integration.

(2) Europe 1992 will improve efficiencies of the European defense industry. The removal of barriers to trade and harmonization of industrial standards among EC member states will increase competition and increase efficiencies across all economic sectors. Removal of people barriers will eventually create a European workforce as mobile as the workforce in the United States. Movement of goods and equipment between European defense firms will be facilitated. The deregulation of Europe's most heavily protected industries like banking, transportation, telecommunications, utilities, etc., will improve infrastructures and help build a business environment required for world class competitiveness.

(3) Europe's defense industry is becoming heavily concentrated. Increased corporate efficiencies and declining defense budgets are providing the motivation, and a liberalized European antitrust framework the means, for defense industry consolidation both nationally and internationally through mergers and acquisitions. Fewer but larger defense firms will result. Furthermore, these large defense firms are connecting themselves through a series of complex national and international strategic alliances, resulting in specialized industry groups and international consortia aimed at focusing combined resources to effectively penetrate world defense markets.

(4) An improved European defense technology base should result from coordinated European research programs. The European Community's EURAM, BRITE, and ESPRIT research programs, along with the 19-nation EUREKA program, are concentrating on dual use, high technology fields such as communications, aerospace, manufacturing,

data processing, etc. The results of these programs should translate into direct benefits to technology bases of growing European defense firms. Moreover, the EUCLID research program established by the IEPG to reduce research duplication and enhance technology transfer among participants should improve defense-specific technology.

(5) More open and competitive defense markets within Europe should result from the efforts of the IEPG. The trend toward one, or at most, two large defense firms within France, Germany, Italy, and the United Kingdom will result in near monopoly situations for these nations and cause them to support more open defense markets within Europe. Increased competition within these more open markets will further improve efficiencies of European defense firms.

(6) There is a developing preference within Europe for pan-European programs vice transatlantic programs. Factors contributing to this trend are: a desire to reap the benefits of the investments required to restructure the European defense industry; political pressures to protect industries and jobs during an era of declining defense budgets; an improving technology base within Europe making it no longer necessary to turn to the United States for the latest in weaponry; efforts of the IEPG to create pan-European cooperative programs; and disincentives generated by U.S. policies and practices associated with cooperative programs.

(7) Stronger, more competitive European defense firms can be expected. The combination of the above improved technologies, enhanced economic infrastructures from the Europe 1992 program; increased benefits of

economies-of-scale from pan-European programs; larger, more integrated defense firms able to take advantages of pooled corporate resources and international alliances; and increased competition from more open defense markets within Europe will result in stronger, more formidable competitors for the U.S. defense industry.

(8) U.S. defense firms are reacting by forming short-term project specific alliances with European defense firms. These are company-to-company alliances on programs that would not generally be considered as important national programs: equipment upgrades, bids, etc. These type of collaborations have accelerated from as few as 6 in 1986 to more than 36 in 1989. The U.S. defense firms agree that future participation or access to the European defense market will be facilitated with an established European partner. The lack of long-term alliances (direct investment, joint ventures, etc.) being formed today with Europe's defense firms portends a reduced long-term involvement in Europe's defense markets by U.S. defense firms.

(9) Defense exports, as a percentage of total U.S. defense industry sales, can be expected to decline as a result of more competitive European defense firms and growing European self-reliance for armaments. An accompanying increase in unit costs for U.S. defense equipment can be expected along with this decline in defense exports.

(10) DOD policy and management structure for international defense trade and cooperation is ineffective. No single directive governing international defense cooperation exists and the two directives currently in effect date back to 1967 and 1980, neither of which address important developments in cooperative programs that

have occurred in the last 10 years (Nunn program, NATO CAPS etc.). Official DOD policy stating goals and objectives is non-existent (DOD personnel involved in defense cooperation programs are currently using a 1985 letter by former Secretary of Defense Weinberger as guidance). Management responsibility is fragmented, complex and confusing to those within DOD as well as industry and our allies. A number of government sponsored management reviews, including *three separate studies* by the Defense Science Board and most recently by the Defense Policy Advisory Committee on Trade (DPACT) have recognized these organizational impediments and have recommended carefully considered and tightly reasoned recommendations. At the time of this writing, these recommendations calling for the DOD to update, restructure and consolidate its management approach to cooperative programs in response to global economic trends, have not been acted upon.

Recommendations

The DOD can lessen the impact of these changes by supplementing its current armaments cooperation structure with appropriate high-level advocacy and oversight. In addition, the DOD should review its current organization and policies for international armaments cooperation and trade to meet future relationships with a strengthened European acquisition community. Furthermore, DOD can send a strong and timely signal to Europe that it is serious about maintaining transatlantic relationships in armaments collaboration by implementing the following recommendations. These recommendations correspond closely to previous recommendations made by some of the

most knowledgeable and respected advisors in the defense business: the Defense Science Board, the Defense Policy and Advisory Committee on Trade, and the Rand Corporation. Unfortunately, their recommendations have yet to be acted upon. Perhaps the challenging economic movements occurring in Europe will add a new sense of urgency, encouraging DOD to reexamine its basic approaches to armaments cooperation and trade.

(1) **Update DOD armaments cooperation goals** through a Secretary of Defense letter: To capitalize on economic benefits available through armaments cooperation during an era of declining defense budgets, and to deter a growing polarization between the U.S. and European acquisition communities, a Secretary of Defense letter replacing and updating the 1985 Secretary of Defense letter on armaments cooperation should be issued. The letter should include policies on non-NATO, Nunn initiative programs, and NATO CAPS. A realistic goal to replace the previous goal of 25 percent cooperative programs by the year 2000 should be established through the letter. Direction to establish a permanent Defense Cooperative Working Group and an *ad hoc* Defense Cooperative Action Group should also be included. It is imperative that goals be initiated from highest levels in DOD; otherwise, Europeans will not view any initiated changes as credible due to past experience, nor will lower levels of DOD change their cultural attitude or methods of handling cooperative programs.

(2) **Reestablish the Defense Cooperation Working Group (DCWG).** The Defense Cooperation Working Group (DCWG), chaired by the Deputy Secretary of Defense for approximately six months and thereafter by the Under Secretary of

Defense for Acquisition, should be reestablished as the central DOD body for overseeing and planning armaments cooperation. In addition to providing an interface with allied defense acquisition communities, formation of such a group would supply top-level advocacy and oversight for armaments cooperation now missing within DOD. For the DCWG to be effective, participation and commitment of individual Services, as well as state and commerce departments, will be required. The group should meet periodically and, among other activities, should:

- Track ongoing cooperative programs.

- Work with the Services to establish valid and important cooperative programs early in the acquisition process. To accomplish this for NATO cooperative programs, a combination of the NATO CAPS process and the DOD budgeting process should be used. For non-NATO programs, the budgeting process should be used.

- Monitor industrial base impacts of armaments cooperation. Areas where declining defense budgets could result in complete shutdown of a specific capability within allied nations should be closely monitored. Maintenance of two available embryonic capabilities within allied nations through cooperation should be preferred over a monopolistic capability in any allied nation.

- Work toward resolving interdepartmental, interservice, and international problems on technology transfer, re-export sales, and export licensing.

- Work closely with the Congress to obtain support for armaments cooperation.

- Oversee actions of the below *ad hoc* DOD Cooperation Action Group. Upon completion of action group tasks (approximately six months) chairmanship of the DCWG should be transferred to the Under Secretary of Defense for Acquisition.

(3) Establish optimal DOD organization and policies for defense cooperation and trade through an *ad hoc* DOD Cooperative Action Group. The *ad hoc* action group should be tasked with updating DOD organization, management practices and policies associated with armaments cooperation. The action group should:

- Review DOD management structure and procedures with the aim of establishing a more centralized DOD organization for armaments cooperation (See Appendix F for a Defense Science Board recommendation on DOD organization for armaments cooperation).

- Review current DOD policies, directives, and management practices on armaments cooperation. Special attention should be given to any policies that tend to lessen competitiveness of the U.S. defense industry.

- Initiate and monitor updating of DOD directives concerning armaments cooperation.

- Develop an Armaments Cooperation Master Plan. To establish a roadmap for armaments cooperation into the 1990s and to help expedite current efforts along this line by the Deputy Under Secretary of Defense (International Programs), the DOD Cooperative Action Group should write an armaments cooperation master plan.

Revised program management procedures for international cooperative programs should be included in the master plan. Industry inputs should be solicited during writing of the plan to receive benefits of industry's expertise and experience.

(4) Increase DOD-wide education on international aspects of program management through the Defense Systems Management College. In a 1989 DSMC survey of Program Management Offices, selected DOD personnel, and attendees of an international program management seminar, only 12 percent of 177 respondents felt that existing educational opportunities for international program management were adequate. When asked what areas of knowledge are most essential to performance of those involved in international programs, Program Management Office respondents with international experience rated the field of contracting highest.

While contracting is the most obvious area in need of additional educational focus, there are additional specialties where education could improve performance of functional managers involved in international programs. Because of differences between DOD and allies in approaches to program schedule and cost control, a course in international program control and monitoring would be especially helpful. Other obvious fields are licensing arrangements and technology transfer, two areas that often create problems and misunderstandings among cooperative program partners. To allow maximum exposure of these courses to the

acquisition community, they should be offered in programmed text style as correspondence courses.

(5) Work through the NATO Conference of National Armaments Directors (CNAD), to ensure changes in the European acquisition community are not detrimental to transatlantic armaments cooperation and trade. The CNAD should be encouraged to work toward open defense markets NATO-wide and to increase efforts toward ensuring success of the NATO Conventional Armaments Planning System. The United States should propose a North American Defense Industrial Base (NADIB) type arrangement with NATO European nations to ensure free and open markets for defense goods within NATO. Simultaneously, the United States should propose a more formal relationship between NATO CAPS and the IEPG to allow inputting of IEPG progress and concerns into the NATO CAPS process.

Parallel to these DOD actions:

(6) The U.S. defense industry should develop appropriate strategies to establish and maintain strategic alliances with the European defense industry. Industrial alliances within Europe are developing quickly, and U.S. defense firms without established transatlantic alliances may find it difficult to be involved in future European defense business. These alliances must be formed quickly, for as one U.S. defense industry analyst has noted "...there are far more American grooms than European brides."

"The trouble with the future is that it usually arrives before we are ready for it."

-- Arnold H. Glasgow

Executive Summary

Although the European Community's Europe 1992 program is not designed directly to impact defense, it will nevertheless result in profound and subtle effects on U.S. and European defense acquisition communities. Europe 1992 infrastructure improvements, when combined with a parallel drive toward integrated European armaments markets and a restructuring European defense industry, both encouraged in part by Europe 1992, should result in a stronger, more self-reliant European defense acquisition community. These changes may well result in a loss of U.S. defense industry competitiveness, lowered U.S. defense sales to Europe, a reduction in transatlantic cooperative programs, and an increase in unit costs of U.S. defense items. This study examines such issues and recommends changes to the DOD and U.S. defense industry to reduce potential impacts on the U.S. defense acquisition community.

The European Community and Europe 1992

The European Community's four executive institutions-- Commission, Parliament, Council of Ministers and Court of Justice--form the institutional framework for constructing an economically united Europe. Referred to collectively as the EC,

these executive institutions represent the 12 member countries of: Belgium, Denmark, the Federal Republic of Germany, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, and the United Kingdom.

In its present day configuration, the EC has evolved considerably since its inception after World War II. In 1957, the Treaty of Rome was signed to create a single European market (Common Market) by eliminating trade barriers which impeded free flow of goods, people, services and capital among member states. This objective went largely unrealized as each country's nationalistic approach tended to develop and favor differences between member states rather than harmonization and integration of national markets. European industry fragmentation, inefficiency and overcapacity resulted, preventing Europe from realizing its full potential as the world's largest trading block. Benefits being lost by not completely integrating Europe's markets have been estimated and include creation of 2-5 million jobs, a 5 percent EC gross domestic product increase of 7 percent during a 5-year period beginning in 1987, and a 6 percent reduction in overall consumer prices.

In 1985, the European Commission published its now famous white paper outlining a plan of action and milestones to complete integration of Europe's national

markets. It proposed implementation of 279 directives to eliminate barriers to free trade among the member states. The paper called for approval and adoption of all 279 directives by the Council of Ministers by December 31, 1992; hence, Europe 1992. The concept was formalized in 1986 when Member Heads of State signed the Single European Act (SEA). The SEA contains provisions to restructure and accelerate the EC decision-making process regarding most proposed directives. With the SEA in effect, the Council of Ministers now have political authority to adopt directives through a qualified majority vote vice unanimity that was required in the past and attributed with lack of progress. The SEA also contains a provision calling for increased coordination of "economic and political aspects of security." This provision opens the door for the EC to play a greater role in this area by increasing its influence in European security dialogues.

As of the last official report in June 1989, 50 percent of the 279 directives were adopted by the Council of Ministers. Excellent progress has been made in liberalizing finance regulations and business law associated with mergers and acquisitions, creating a powerful and supportive environment for industry-wide consolidations presently underway. However, limited progress has been made in three crucial sectors considered keys to total success of Europe 1992: taxes, labor and national public procurement. Unanimous voting is still required for most issues in these areas because they are considered essential to preserving a country's national sovereignty. Many observers believe such national sovereignty problems could prevent the program from reaching its goal of passing all directives by December 31, 1992.

Despite lack of progress in these areas, Europe 1992 enjoys enormous credibility and high expectations within Europe's private sector. As a result, European industries are proceeding with consolidation and restructuring as if the Europe 1992 program were already in effect. This movement by industry will create a political and economic environment within Europe that will not only encourage the passing of the remaining directives, but will compel Eurocrats to complete the effort. Restructured industries and their workers are not likely to stand by patiently and await passage of the remaining directives while the clock is ticking on receiving returns on investments associated with restructuring. Such internal political pressure, combined with growing competitiveness of industries outside Europe, should help push the Europe 1992 movement toward a successful conclusion, despite delays caused by national sovereignty issues. For these, and other reasons, Europe 1992 must be looked upon as a continuing movement whose time has come, rather than as a specific date on the calendar.

The Changing European Armaments Market

As the European Community goes about creating more open commercial markets, sister movements on the demand side of the European defense market are gathering strength and ideas from Europe 1992 and marching toward similar changes in the European armaments markets. The Independent European Program Group (IEPG), representing all NATO European nations, except Iceland, is chipping away at

protectionist walls between national defense markets and working toward coordinated European defense research and cooperative European development programs. Despite problems such as national security concerns, lack of a formal treaty, and a controversial plan for dividing up nations' shares of defense business through a vague concept called *Juste Retour*, the IEPC continues to make progress.

Meanwhile, the NATO Conventional Armaments Planning System (CAPS), in an exercise of partial duplication, is working toward similar goals by matching national requirements with NATO force requirements and promoting NATO cooperative programs. Not to be left out, a rejuvenated Western European Union is beginning to assert itself as a unifying force with concerns about pan-European and transatlantic armaments cooperation. Combined in a process that some call "parallel integration," the Europe 1992 movement and the IEPC are working toward a more united and self reliant European acquisition community with open defense markets. When formed, this reconstructed European acquisition community should be capable of dealing with the U.S. acquisition community on a more equal basis.

European Defense Industries Restructure: U.S. Counterparts React

Throughout the European defense industry, massive restructuring, driven by overcapacity and declining defense budgets, is occurring at company and industry levels through establishment of long-term strategic alliances (mergers and acquisitions). This restructuring is aimed at increasing an individual company's size,

core capability and product mix, while achieving the critical mass necessary for world competition at industry-level through teaming and consortia.

As Europe's defense firms go through this restructuring, the Europe 1992 program is giving them a shot in the arm by creating efficiencies in Europe's infrastructures that will translate directly into improved defense industries. Examples include (1) implementation of the Single Administrative Document (SAD) which should significantly reduce costs associated with cross-border movement of defense goods and equipment; (2) mutual recognition of diplomas and professional degrees of defense workers; (3) deregulation of utilities which should increase competition and provide cheaper energy to heavy users in defense manufacturing; (4) creation of common, harmonized industrial standards which should improve the efficiencies of the European defense industry; and (5) gradual shifting of antitrust oversight from national to EC control which will contribute to defense industry consolidation and rationalization. In addition, Europe, unlike the United States, has taken its research and development concept a step further by establishing and funding (\$5.2 billion) coordinated research programs for critical dual-use technologies that will directly benefit the European defense technology base. These Europe 1992 improvements, when combined with aforementioned co-movement efforts to integrate the European defense markets and a restructured European defense industry with fewer but larger defense firms, should result in stronger, more formidable competitors for U.S. defense firms.

Just as Europe's new commercial industries can be expected to push the

European Community toward a successful opening of commercial markets, restructured European defense firms can be expected to pressure the IEPG to complete the process of opening Europe's defense markets. Likewise, restructuring of the European defense industry into fewer but larger national defense firms is expected to create monopolies eventually, or near monopolies, in single nation's defense markets, providing additional pressure to governments to integrate European defense markets to maintain the benefits of competition.

Meanwhile, the U.S. defense industry is undergoing a tremendous self-education process concerning these changes in Europe. United States defense firms are evaluating market opportunities in Europe, and most major defense contractors are developing strategies to preserve world market shares in light of declining defense budgets and the new challenge from Europe. Strategic alliances with European defense firms are increasing but, for the most part, they are short-term project specific alliances that dissolve when the project ends. Establishment of long-term European alliances (cross shareholdings, joint companies, etc.) by U.S. firms is not likely at this time because of U.S. defense firms' high debt to equity ratios, declining European defense budgets, overcapacity in the European defense industry and U.S. firms' preoccupation with short-term financial results. In addition, restrictive U.S. policies associated with technology transfer and re-export licensing create a disincentive to U.S. firms considering long-term investments in the European defense market. These defense restrictions also make U.S. defense firms a less attractive partner from the European perspective.

Implications for U.S. Acquisition Community

European industry and government executives interviewed felt strongly that future partnerships with the United States must involve equal relationships. Europeans now want to be true partners, not just customers. This attitude is contributing to a strengthening trend within Europe for pan-European solutions to armaments. Encouraged by outdated U.S. policies and approaches to cooperative programs, and non-existent, high-level DOD advocacy and oversight for cooperative programs, this trend could result in a polarization of U.S. and European acquisition communities. As a result, pan-European, vice transatlantic defense programs, will probably be favored by Europeans as they form their new defense acquisition community. At a time when the usefulness of NATO is being questioned and the United States is growing ever more concerned with a Europe that seems determined to go its own way, this trend should be countered with U.S. policies and relationships that pull Europeans into a closer relationship rather than policies that push them away.

The revitalized and more competitive European defense industry will likely produce a larger share of Europe's defense armament requirements. Political and economic pressures to do so will be considerable as Europeans seek to reap the benefits of their restructuring. This will most likely result in a loss of U.S. defense sales to Europe. Also, stronger, more competitive European defense firms with fewer export restrictions and long-term experience in export sales will be

positioned better to exploit and penetrate Third World defense markets. Together, potential implications to the U.S. defense acquisition community are considerable, including reduced exports, with a concomitant increase in unit costs calculated at approximately 2.6 percent for U.S.-built equipment in 1992.

Recommendations

It is clear that the ongoing changes in Europe will have profound effects on the U.S. defense acquisition community ranging from reduced defense exports to fewer transatlantic cooperative programs. The DOD can lessen the impact of these changes by supplementing its current armaments cooperation structure with appropriate high-level advocacy and oversight. In addition, the DOD should review its current organization and policies for international armaments cooperation and trade to meet future relationships with a strengthened European acquisition community. Furthermore, DOD can send a strong and timely signal to Europe that it is serious about maintaining transatlantic relationships in armaments collaboration by implementing the following recommendations.

(1). Update DOD armaments cooperation goals through a Secretary of Defense letter. The letter should replace and update the 1985 armaments cooperation letter issued by Secretary Caspar Weinberger and include DOD's approach to non NATO, Nunn initiative programs and NATO CAPS. The letter should also include direction to reestablish the Defense Cooperative Working Group and the establishment of an *ad hoc* Defense Cooperative Action Group.

(2). Reestablish the Defense Cooperative Working Group (DCWG). The group should be chaired by the Deputy Secretary of Defense for the first 6 months, thereafter by the Under Secretary of Defense for Acquisition, and provide the necessary advocacy coordination and oversight for DOD armaments cooperation and trade, resolve interdepartmental conflicts concerning technology transfer, re export sales, and export licenses.

(3). Establish optimal DOD organization and policies for defense cooperation and trade through an *ad hoc* DOD Cooperative Action Group which would recommend changes to the Secretary.

(4). Increase DOD wide education on international aspects of program management through the Defense Systems Management College. This increase in education should concentrate on functional area training in contraction, cost accounting, etc.

(5). Work through the NATO Conference of National Armaments Directors (CNAD) to ensure changes in the European acquisition community are not detrimental to transatlantic armaments cooperation and trade. The CNAD should be encouraged to work toward open defense markets NATO wide and to increase efforts toward ensuring the success of the Nato Conventional Armaments Planning System.

Parallel to these DOD actions:

(6). The U.S. defense industry should develop appropriate strategies to establish and maintain strategic alliances with the European defense industry. Industrial alliances within Europe are developing quickly, and U.S. defense firms without established transatlantic alliances may find it difficult to be involved in future European defense business.

APPENDIX A

**Single European Act
(Excerpts)**

APPENDIX A

Single European Act (Excerpts)

Common Provisions

The European Communities shall have as their objective to contribute together to making concrete progress toward European unity.

Provisions Relating to Internal Markets

The community shall adopt measures with the aim of progressively establishing the internal market during a period expiring on 31 December 1992. The internal market shall comprise an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured in accordance with the provisions of this Treaty.

The Council, acting by a qualified majority on a proposal from the Commission, shall determine the guidelines and conditions necessary to ensure balanced progress (toward completing the internal market) in all the sectors concerned.

The Council shall issue directives, acting by a qualified majority. It shall endeavor to attain the highest possible degree of (financial) liberalization. Unanimity shall be required for measures which constitute a step back regarding the liberalization of capital movement.

Provisions Relating to Macroeconomic Policy

In order to ensure the convergence of economic and monetary policies which is necessary for the further development of the Community, Member States shall cooperate (in the setting of macroeconomic policies).

Provisions Relating to Social Policy

Member States shall pay particular attention to encouraging improvements, especially in the working environment, regarding the health and safety of workers, and shall set as their objective the harmonization of conditions in this area, while maintaining the improvements made.

The Commission shall endeavor to develop the dialogue between management and labor at European level which could, if the two sides consider it desirable, lead to relations based on agreement.

Provisions Relating to Economic and Social Cohesion

The Community shall aim at reducing disparities between the various regions and the backwardness of the least-favored regions.

Provisions Relating to Research and Technological Development

The Community's aim shall be to strengthen the scientific and technological basis of European foreign policy.

Provisions on European Cooperation in Foreign Policy

(The members of the ECI shall endeavor jointly to formulate and implement a European foreign policy...

Final Provisions

This Act (shall be) drawn up in a single original in the Danish, Dutch, English, French, German, Greek, Irish, Italian, Portuguese, and Spanish languages.

Source: Single European Act. Bulletin of the European Communities. Supplement 2/86.

APPENDIX B

**Major Elements of the
1992 Program**

APPENDIX B

Major Elements of the 1992 Program

In standards, testing, certification

Harmonization of standards for:

- Toys
- Automobiles, trucks, and motorcycles and their emissions
- Telecommunications
- Construction products
- Machine safety
- Measuring instruments
- Medical devices
- Gas appliances
- Cosmetics
- Quick frozen foods
- Flavorings
- Food preservatives
- Instant formula
- Fruit juices
- Food inspection
- Definition of spirited beverages and aromatized wines
- Tower cranes (noise)
- Household appliances (noise)
- Tire pressure gauges
- Detergents
- Fertilizers
- Lawn mowers (noise)
- Medicinal products and medical specialties
- Radio interferences

New rules for harmonizing packing, labeling, and processing requirements

- Ingredients and labels for food and beverages
- Nutritional labeling
- Classification, packaging, labeling of dangerous preparations

Harmonization of regulations for the health industry (including marketing)

- Medical specialties
- Pharmaceuticals
- Veterinary medicinal products
- High technology medicines
- Implantable electromedical devices
- Single-use devices (disposable)
- In-vitro diagnostics

Changes in government procurement regulations

- Coordination of procedures on the award of public works and supply contracts
- Extension of EC law to telecommunications, utilities, transport
- Services

Harmonization of regulation of services

- Banking
- Mutual funds
- Broadcasting
- Tourism
- Road passenger transport
- Railways
- Information services
- Life and non-life insurance
- Securities
- Maritime transport
- Air transport
- Electronic payment cards

Liberalization of capital movements

- Long-term capital, stocks
- Short-term capital

Consumer protection regulations

- Misleading definitions of products
- Indication of prices

Harmonization of laws regulating company behavior

- Mergers and acquisitions
- Trademarks
- Copyrights
- Cross-border mergers
- Accounting operations across borders
- Bankruptcy
- Protection of computer programs
- Transaction taxes
- Company law

Harmonization of taxation

- Value-added taxes
- Excise taxes on alcohol, tobacco and other

Harmonization of veterinary and phytosanitary controls

- Harmonization of an extensive list of rules covering items such as:
 - Antibiotic residues
 - Animals and meat
 - Plant health
 - Fish and fish products
 - Live poultry, poultry meat and hatching eggs
 - Pesticide residues in fruit and vegetables

Elimination and simplification of national transit documents and procedures for intra-EC trade

- Introduction of the Single Administrative Document (SAD)
- Abolition of customs presentation charges
- Elimination of customs formalities and the introduction of common border posts

Harmonization of rules pertaining to the free movement of labor and the professions within the EC

- Mutual recognition of higher educational diplomas
- Comparability of vocational training qualifications
- Training of engineers and doctors
- Elimination of burdensome requirements related to residence permits

Source: *Business America*, August 1, 1988, p.2

Estimates of Costs of Barriers

(billion ECU)^a

I. Costs of specific types of barriers

1. Customs formalities--1.7%-1.9% of intra-Community trade flows	8-9
2. Public procurement	<u>21</u>
Total	29-30

II. Costs of barriers in specific industries

1. Food--.67%-1.5% turnover ^b	0.5-1.0
2. Pharmaceuticals--1%-2% turnover	0.3-0.6
3. Automobiles--5% turnover	2.6
4. Textiles and clothing--.5%-1% turnover	0.7-1.3
5. Building materials--1.67% turnover	2.8
6. Telecommunications (equipment)--10%-20% turnover	<u>3-4.8</u>
Total	9.1-13.1

III. Costs of barriers in specific service sectors

1. Financial services--10% average prices	22
2. Business services--3% turnover	3.3
3. Road transport--5% turnover	5
4. Air transport--10% turnover	3
5. Telecommunications (services)	<u>6</u>
Total	39.3

Source: *European Economy*, March 1988

Note: The table records the results of special studies undertaken by consultants, except the transport cases, which rely on earlier published sources. Adding categories I and II would imply some double counting, since some but not all the costs of customs formalities and government procurement are covered under branches in II.

^aIn 1989, 1 ECU = US\$1.15

^bTurnover is total sales revenue of a business

APPENDIX C

**U.S. and European Defense Firm
Teaming Arrangements
1986-1989**

APPENDIX C

U.S. and European Defense Firm Teaming Arrangements 1986-1989

Compiled From the following Defense periodicals:

DEFENSE NEWS
JANE'S DEFENSE WEEKLY
AIR & COSMOS
NATO'S SIXTEEN NATIONS
INTERAVIA AEROSPACE REVIEW
FLIGHT INTERNATIONAL

Data search conducted by Federal Research Division of the Library of Congress

1986

TEAM

1. GTE/THOMSON (FR)
2. DY-4 SYSTEMS/FERRANTI (UK)
3. FORD AERO/FERRANTI
4. US WEST/SIEMENS (FRG)
5. HUGHES/MBB(FRG)/AEROSPATIALE(FR)
6. SIX INTERNATIONAL TEAMS

PRODUCT

MOBILE SUBSCRIBER EQUIP
TECH TRANSFER
TARGETING POD
NETWORK SWITCHING SYS
ROLAND I/II MISSILES
SDI THEATER DEF. STUDY

1987

1. RCA-FMC-GD-CSC-GE/THOMSON(FR)
SIEMENS(FRG), BAe(UK), SIGNAAL(ND)
2. GD/ASELAN(TK),DORNIER(FRG),
ENSAB(SP), MATRA(FR),
OTO MALERA(IT)

NATO AAWS BID

PRECISION GUIDED MUNITIONS

3. WESTINGHOUSE/ PLESSEY(UK)
4. EMERSON/ AGUSTA (IT)
5. MARTIN MAR/DOWTY(UK)
6. GE/THOMSON(FR)/VDO(FRG)
7. HERCULES/INTERMARINE(IT)

MISSILE APPROACH WARNER
ANTI-TANK SYS. HELITOW
SR ANTI-ARMOR WEAPON
LCD UNIT DEVELOPMENT
MINESWEEPER SHIPBUILDING

1988

1. HUGHES/MATRA(FR)
2. HUGHES/ESPRODESIA (SP)
3. GM ALLISON/AEROSPATIALE(FR)
4. GE/GEC(UK)
5. MCDONNELL D/GEC(UK)
6. MCDONNELL D/BAe(UK), GPA(IR)
7. MCDONNELL D/ MBB (FRG)
8. MCDONNELL DHC/ ROYAL
ORDANANCE(UK)
9. BENDIX/FERRANTI(UK)
10. BOEING/THOMSON(FR)/PLESSEY(UK)
11. BOEING/ THOMSON (FR)
12. LOCKHEED-SANDERS/GEC(UK)
13. LOCKHEED / LORENZ (FRG)
14. DETROIT DIESEL/ PERKINS ENGINE(UK)
15. MAGNAVOX/FERRANTI(UK)
16. TELEDYNE/EICHWEBER(FRG)
17. TRACOR AERO/ MES(IT)
18. HERCULES AERO/ AEROSPACIALE(FR)
19. LTV/ AEROSPACIALE(FR)
20. TRW/ MEL(UK)
21. ALLIED SIGNAL AERO/FERRANTI(UK)
22. ATLANTIC RESEARCH/BAJ(UK)
23. TI/THOMSON(FR)

SDI STUDY
ARIES MISSILES
ALLISON T406
SMALL-MED HP TURBINES
MAST MOUNTED SIGHT
MD-11
F-4E UPGRADE PACKAGES

30mm ASP SYS.
EFA POWER SYS. (ELEC)
OTAN IADS BID
LCD INSTRUMENTATION
OSPREY ASW SONAR
AIR DEF SYS. BID ICELAND
ENGINES (DEF USE)
SATNAV SYSTEM BID
TANK WEAPON GUN SIM SYS
THREAT ADAP.CNTRMEASURE
MOA HIGH TEMP MATERIALS
SA 365 HELO
PRC 319 HF/VHF RADIO
ELEC GEN AIRBUS 340/EFA
MISSILE PROPULSION SYS.
MOU RADAR TECH EXCHANGE

1989

1. HUGHES/E-SYS+MBB(FRG)
2. HUGHES-RAYTHEON/MBB(FRG)
3. HUGHES-LOCKHEED/AERMACCHI(IT)
4. PRATT&WHITNEY/ NORDAM(UK)
5. PRATT&WHITNEY/ AIRMOTIVE
IRELAND(IR)
6. PRATT&WHITNEY/ AERITALIA(IT)

ARMS VERIFICATION TECH
AMRAAM PRODUCTION
PATS BID
JT8/BOEING 737

TEST ENGINE CASES
ENGINES

7. MCDONNELL D/ MATRA(FR)	MISSILES/MUNITIONS MKTNG.
8. MCDONNELL DHC/ SOGITEC(FR)	MISSION PLAN. SYS.
9. MCDONNELL D/WESTLAND(UK)	APACHE AH-64A
10. ITT/TRT(FR)	USAF RADIO ALTIMETERS BID
11. MOTOROLA/ THOMSON(FR)	88000/RISC TECH EXCHANGE
12. LOCKHEED/ AEROSPACIALE(FR)	LONG TERM MOU
	(COMMERCIAL)
13. LOCKHEED/ AEROSPACIALE(FR)	EUROFLAG
14. SUNDSTRAND/ LABINAL (FR)	AUX. POWER SYS.
15. LTV/SEP(FR) AEG(FRG)	ERINT MISSILE
16. LTV/ PHILLIPS HSA (ND)	FAADS BID
17. UNISYS/ WESTLAND(UK), AGUSTA(IT)	EH101 SALES (PENDING)
18. TI/THOMSON(FR)	OBSTACLE EVASION SYS
	(ROMEO)
19. RAYTHEON/THOMSON SINTRA(FR)	SQQ-32 SONAR
20. RAYTHEON-MARTIN MAR/ MBB (FRG),	
ERIA(SP) BRISTOL (UK), FOKKER (ND),	
PLESSEY (UK)	NAAWS BID
21. DARPA/DGA (FR)	RESEARCH - REACTIVE ARMOR
22. WESTINGHOUSE/ E SERGE DASSAULT(FR)	MICROPROCESSOR CO-PROD
23. HEWLETT PACK/ E SERGE DASSAULT(FR)	ANTENNA TEST EQUIP
24. NASCO/ FICANTIERI (SP)	SHIPBUILDING & DESIGN
25. ENSIGN BICKFORD/ BAE ROYAL	
ORD (UK)	EXPLOSIVE PRODUCTS
26. MARTIN MAR/ DOWTY(UK)	ALFS DIPPING SONAR
27. BOEING/ THOMSON(FR)	SDI FREE ELECTRON LASER
28. TELEDYNE/ FOKKER (ND)	F-50 AIRCRAFT
29. THIOKOL/ BRIT AERO (UK)	ROCKET PROPELLANT
30. GE/ FERRANTI(UK)	HIGH ALT RECON SYS (TADMS)
31. GE/ GEC RUSTON(UK)	T-700 ENGINES (BLACKHAWK)
32. IBM/ SIEMENS(FRG)	64 MEGABIT CHIP
33. HERCULES/BAT (IT)	COMPOSITE STRUCTURES

APPENDIX D

IEPG Panel 1
Sub-Groups

APPENDIX D

IEPG Panel 1 Sub-Groups

155MM ARTILLERY SYSTEMS
FR BE DE IT NO PO SP UK

ACTIVE/PASSIVE TOWED ARRAY SYSTEMS
IT BE FR GE UK (SP)

ADVANCED PILOT TRAINER
SP PO

AMRAMM
NO UK (IT) (NL) (SP)

ANTI-TANK GUIDED WEAPONS THIRD GENERATION
FR BE GE NL SP UK

ANTI-TANK MINE (DIRECT EFFECT)
FR GE UK

ARMOURED BRIDGELAYER INTEROPERABILITY
BE FR GE IT NL SP (UK)

ARMOURED CARRIER VEHICLE
BE FR GE NO (UK)

ASRAMM
UK FR NO SP CA US

COASTAL MINESWEEPER
BE NL NO (PO)

FUTURE LARGE AIRCRAFT
BE FR GE IT SP TU (UK) PO

HEAVY SUPPORT WEAPONS/AGL
BE FR GE NL SP (UK)

LOGISTIC VEHICLES
SP BE FR GE IT NL UK

M113 MLU
TU BE DE NO *GE*

M483/M864 155MM ARTILLERY AMMUNITION
NL TU UK

MEDIUM & HEAVY MORTARS
SP BE FR NO UK (IT)

MICROWAVE LANDING SYSTEM
UK BE FR GE IT NO SP (NL) *DE*

MISTRAL
FR BE DE IT SP NO

MPA
FR IT NL SP (UK)

MSAM
FR BE GE IT NL NO SP UK

NBC
FR IT SP UK

SONOBUOYS & ACTIVE DIPPING SONAR/MAD BUOYS
UK FR GE IT

STINGER
GE GR NL TU

SURVEILLANCE & TARGET ACQUISITION
UK BE IT NL SP

VEHICLE ROBOTICS
GE FR SP UK NL

KEY:

() = Observer

Italics = Considering

APPENDIX E

Independent European Program Group Action Plan Outline

SOURCE: IEPG, European Armaments Market Plan, Luxembourg, July 1988, as compiled by the Congressional Research Service in EC 1992: Potential Implications for Arms Trade and Cooperation.

IEPG ACTION PLAN

GOAL: BORDER CROSSING COMPETITION/CONSORTIA

Measure	Implementation Activities	Time Scale for Implementation
1. Increase awareness of bidding opportunities.	<ul style="list-style-type: none"> • Review current announcement procedures • Jointly formulate an agreed classification (by nature and value) of bidding opportunities • Issuance of a publication advertising bidding opportunities in agreed upon format and language, in a form available to all IEPG member-contractors • Possible issuance of IEPG publication for IEPG wide • Public establishment of focal point in each IEPG government • Possible compilation and exchange of lists of known and acceptable defense supplies 	<p>6 months</p> <p>9 months (initial system)</p> <p>12-18 months to completion</p> <p>Initiate within 3 years</p> <p>Complete in 6 months</p> <p>Initiate within 18 months</p>
2. Registration of interest by potential bidders		

GOAL: BORDER CROSSING COMPETITION/CONSORTIA (Continued)

Measure	Implementation Activities	Time Scale for Implementation
3. Compatibility of contractual procedures	<ul style="list-style-type: none"> • procedures to identify impediments for elimination • Joint agreement selection criteria • Development of guidelines to encourage cross-border competition at subcontract level 	Complete within 9 months
		Complete within 15 months
		Complete within 15 months
4. Collaborative programs	<ul style="list-style-type: none"> • Develop guidelines for flexible worksharing requirements so as to provide IEPG-wide competition • Development of guidelines to facilitate cross-border industrial 	9 months to completion
		12 months to complete

GOAL: TECHNOLOGY TRANSFER

Measure	Implementation Activities	Time Scale for Implementation
1. Encourage and facilitate the exchange of technical programs and information	<ul style="list-style-type: none"> • Study to determine most effective arrangements for establishing a suitable consultative process • Guidelines on recommended process 	6 months from approval to proceed Additional 6 months
2. Bilateral MOU arrangements to facilitate information exchange	<ul style="list-style-type: none"> • Review existing MOUs with other IEPG countries • Establish new MOUs where 	— —
3. Ensure government user rights in government funded programs so technology can be transferred to other IEPG members	<ul style="list-style-type: none"> • Review existing national legislation practices, and guidance within NATO, IEPG • Draft new guidance where necessary 	Long term Long term
4. Technology safeguards to facilitate technology transfer	<ul style="list-style-type: none"> • Review existing practices within NATO, IEPG • Update guidance 	12 months Additional 6 months
5. Encouragement of early industry contacts when governments embark upon a collaborative project	<ul style="list-style-type: none"> • IEPG/EDIG provide channels for industrial cooperation when responding to proposals or requests for information 	Continuing activity

GOAL: "JUSTE RETOUR"

Measure	Implementation Activities	Time Scale for Implementation
<p>1. Establish recording system to include:</p> <ul style="list-style-type: none"> a) financial imbalances for prime and subcontracts of IEPG projects b) financial imbalances for prime and subcontracts of other collaborative projects c) MOD cross-border contacts, including offset & compensation arrangements <p>2. Each nation reports data once a year to IEPG</p> <p>3. IEPG report in terms of ECU, based on national reports</p> <p>4. Further system evolution</p>	<ul style="list-style-type: none"> • Include recording requirements in new requests for proposals • Establish threshold values for recording • Further study of the issue • IEPG working group to devise format • Consider establishment of registry in IEPG • Further study of the report system established; improvements on weighted factors, scope, escalation 	<p>Within 12 months</p> <p>Within 12 months</p> <p>Within 12 months</p> <p>Within 12 months</p> <p>Within 12 months</p> <p>3 years after initial system</p>

GOAL: "JUSTE RETOUR" (Continued)

Measure	Implementation Activities	Time Scale for Implementation
5. Potential special yearly review of the value of contracts placed by MODs outside IEPG to other NATO countries	---	Long term

APPENDIX F

Defense Science Board Recommendation for Organizing DOD for International Defense Industry Collaboration

SOURCE: Defense Science Board on Defense Industrial Cooperation with Pacific Rim Nations. October 1989.

APPENDIX F

Defense Science Board Recommendation for Organizing DOD for International Defense Industry Collaboration

Issue:

There are several reasons this appears to be an appropriate time to review the organization of DOD to deal with international defense industry collaboration. The distinction between arms sales, security assistance, joint and co-production projects, and technology transfer have become increasingly blurred in the 1980's. The nature of defense exports as a trade issue as well as a foreign policy and national security matter has been highlighted by the FSX negotiations with Japan. DOD has already undergone a series of organizational and procedural changes as the result of the Goldwater-Nichols law and the recommendations of the Packard Commission. And a number of studies, such as the January 13, 1977 Report to the Security Assistance Task Force (known as the Wiley Report) and the June, 1983 Defense Science Board Task Force Report on Industry to Industry International Armaments Cooperation, Phase I-NATO Europe (the Currie Report) have made recommendations for reorganization that have yet to be acted upon.

Recommendations:

The Defense Science Board PACRIM Task Force similarly recommends that the DOD consider the consolidation of the Defense Security Assistance Agency (DSAA), the Defense Technology Security Administration (DTSA), the Office of the Deputy Under Secretary of Defense for Industrial and International Programs, and the Office of the Director of International Acquisition (OASD/Production and Logistics) into a single new agency.

Organizational Histories:

1. DSSA

The providing of arms to our friends and allies since World War II has gone through three distinct but overlapping phases.

The period from the late forties to the early to mid-sixties was characterized by grant aid known as the Military Assistance Program (MAP). However styled, the emphasis was on the no-cost (to the recipient) transfer of equipment directly from U.S. Forces' inventories--initially surplus stocks developed as a result of modernization of our own forces--or from additional new production of systems being produced for U.S. Forces.

The MAP was wholly funded by the U.S. Congress. Programs were implemented by the acquisition and logistics elements of DOD, with the workload centered in the procuring service (Army, Navy or Air Force). An office in OASD/ISA, initially Office of Programming and Control, reporting to the Principal Deputy Assistance Secretary-International Security Affairs, and later to a new position in ISA called Director of Military Assistance, was responsible for programming MSP funds. This was appropriate since the MSP had a high international political aspect. However, the ISA programmers did not manage the execution of the programs, leaving those aspects to the acquisition and logistics chain.

These arrangements worked well. Service hardware Program Managers had few if any complaints. The equipment being furnished was standard U.S. The requirements were easily folded into contracts for equipping U.S. forces; the funding was U.S. budget authority; and there were no issues of R&D recoupment, administrative surcharges, asset use charges, agent fees, co-production, offsets, MOUs, etc., that became commonplace in current programs for providing U.S. arms to friends and allies.

The second phase of our international arms program was a gradual shift from MAP to sales on a government-to-government basis usually referred to as Foreign Military Sales (FMS), and to direct commercial sales. (The term FMS applies exclusively to government-to-government sales). Responsibility for FMS was taken from the Director of Military Assistance and given to a new position of DASD/ISA/International Logistics within OASD/ISA.

FMS transactions initially focused on the stronger economies of European NATO, and Secretary MacNamara launched an aggressive FMS campaign with the objective of having allies obviously able to pay their own way assume larger shares of the common defense burden.

MAP procedures continued for most other countries friendly or allied to the United States and also for some European NATO allies. To finance the hostilities in southeast Asia, the program funding was shifted about FY 1966 from MAP to Military Assistance Service Funded (MASF). This latter program funding was managed by ISA and OSD Comptroller, even though the funds were distributed throughout the several line items of the DOD budget rather than a lump sum item as in the case of MAP.

Responsibility for the MAP and FMS programs, and subsequently MASF program, was reconsolidated in 1971 by the establishment of the Defense Security Assistance Agency. The Director of the Agency reported directly to the Secretary of Defense and had full authority over the execution of the programs. He was "dual-hatted" as the Deputy Assistant Secretary (ISA) for Security Assistance. In this latter role, he reported to the Assistant Secretary of Defense (ISA). The combined organization came to be referred to simply as DSAA although properly it was DSAA/DASD(ISA)SA. The work load of DSAA increasingly shifted to FMS. MAP funding was curtailed by the Congress, and FMS credits became the transitional device for individual countries to progress from MAP to cash sales.

The nature for DSAA operation began to change as customer countries either with cash or FMS credits began to assert the usual prerogatives of a customer. The DASD/ISA/ILN, and later DSAA, no longer was only a fund manager and the interface with ISA and the Department of State on the politico-military aspects of the international arms program. The DASD/ISA/ILN, and latter DSAA, became the prime negotiator for FMS arrangements with friends and allies. The DSAA became, in effect a "Using Command" in the parlance of the DOD acquisition system and logistics system and vice versa. The DSAA was, therefore, by that time, firmly astride and enmeshed in the acquisition and logistics function, but at the same time, DSAA was subject to increasing control of ISA. The direct reporting line of DSAA to the Secretary of Defense became fuzzy in practice. The OSD acquisition and logistics staffs, the Military Departments and Logistics Commands demanded and received a greater voice in international arms matters. By 1976 program direction had become diffused and controversies were common.

Accordingly, Secretary of Defense Rumsfeld directed a review of the Secretary Assistance (read arms sales) relationships and management in OSD. The resulting report rendered by DOD General Counsel, as chairman of a DOD Task Force, recommended DSAA be removed from IDS and report instead to the Acquisition Executive. This report was not rendered until 14 January 1977 and no action was taken by the incoming Carter Administration since its focus was on greatly reducing arms sales.

In the third phase of providing arms to our friends and allies, there has been an overall decline in U.S. arms exports and an increasing percentage of exports going commercial rather than FMS. The current emphasis is on co-production and offsets. Co-development is also a feature of this third phase, but is not within DSAA's responsibilities. Moreover, in a reversal of the historic pattern the grant aid segment has returned mainly under the guise of FMS credits the payment for which are forgiven but

also as direct MAP appropriations that themselves are now transferred and merged into the FMS trust fund and are processed under FMS rather than MAP procedures. The recipients of this type grant aid treat their total funds: credits not to be repaid; MAP; and their own as one pot, i.e., they are a customer on all arms programs regardless of the source of funding.

Under the Carter Administration, whose aim it was to reduce arms exports rather than increase the efficiency of security assistance operations, the DSAA lost his second hat as DASD/ISA/ISA and lost his direct access to the Secretary of Defense. Instead, as was true of his predecessors in the 1950's he reported to the ASD/ISA.

In the Reagan Administration, for reasons extrinsic to security assistance considerations the ASD/ISA position was divided in two -- ASD/ISA and ASD/ISP -- and the Director of DSAA reported to both ASD's depending on the country involved. Subsequently, the reporting channel was changed to direct access to the USD/Policy. With the departure of the incumbent USD/Policy in 1988, DSAA again reported primarily to the ASD/ISA but also to the ASD/P.

2. DTSA

About the same time that ASD/ISA was given the responsibility for administering the MAP some four decades ago, ISA was also vested with the function of being the focal point for DOD review of export license applications to the Departments of Commerce and State. This licensing function was carried out by ISA elements who played no role in administering the MAP or FMS programs.

At the end of the Carter Administration, responsibility for processing munitions licensing function was carried out by ISA elements who played no role in administering the MAP or FMS programs.

In 1985, all the licensing review responsibilities were reconsolidated in a new agency, entitled Defense Technology Security Administration and reporting to the Under Secretary of Defense for Policy. With the department of the incumbent UDS/P in 1988, DTSA now reported to the ASD/P.

3. DUSD/IIP

One of the early components of the MAP was a NATO cooperative research and development program entitled the Mutual Weapons Development Program. Under that program, MAP funds were used to cost share promising technological advanced [sic] initiated by our NATO allies pursuant to bilateral project agreements. A complementary effort was the MAP funded MWDP data exchange program. Programming and funding accountability were handled by the ISA staff that administered the MAP. Day-to-day management was by a U.S. MWDP Team located in Paris, which received technical guidance from ODDRE.

The MWDP, and MAP funding therefore, ceased in the early 1960s. The concept of allied research and development cooperation was reaffirmed, however, in 1963, by the issuance of DOD Directive 3000.3, which called for the use of Service RDT&E funds to finance such projects.

Presumably because of the funding change, responsibility at the OSD level for overseeing the program was transferred from ISA to DDRE, and the forerunner of the present DUSD/IIP office was established in ODDRE. It was moved in 1987 to OUSD/A as a consequence of the Goldwater-Nichols reorganization law.

Because of the emphasis placed on NATO RSI by the Carter Administration and during the Reagan Administration by the Nunn-Warner-Roth Amendment, the workload of this office has increased considerably over the past decade. In 1988, it was merged with the office responsible for industrial base issues.

4. Director of International Acquisition. OASD/P&L

One of the elements of the Carter Administration's initiative on NATO RSI was the negotiation of the "two-way street" bilateral reciprocal MOUs on procurement and cooperative research and development. There are now 19 such bilaterals with NATO countries and major non-NATO allies.

Initially, responsibility for formulating and negotiating these agreements and overseeing their implementation was vested in the European Region of what was then ISA and is now ISP. That responsibility was subsequently shifted to OSD acquisition staff.

Discussion

As indicated by the above historical summary, DOD operated a multifaceted international arms collaboration program. It comprises the export of hardware and technology through commercial channels under export licenses; cooperative research and development; co-production; and two-way street international acquisition. However, there is no one senior OSD official--other than the Secretary of Defense--who is responsible for the entirety of the program even though the components of the program are interdependent.

For example, it would be incongruous for DOD to approve an export on an FMS basis, and vice versa. Similarly, there is no neat dividing line between DSAA's responsibility for co-production agreements and DUSD/IIP's responsibility for co-development agreements during the initial phase of a co-development program. It is hardly to be expected that a co-developer would be willing to postpone all discussions of, and decisions on, production until the development has been completed. Further, in

the context of the two-way street under the reciprocal MOUs, the DOD role is a buyer as well as a seller, and may play both roles in a single transaction, e.g., Patriot for Germany.

To achieve coherent management of these several components of our international defense collaboration program, the DSB PACRIM Task Force recommends that DOD consider the consolidation into a new agency of the four organizations now having responsibility for those components. The new agency should be the DOD focal point of contact with other Government Departments and Agencies, foreign governments, and U.S. and foreign industry. It should be responsible for negotiating all international arms collaboration agreements, including FMS transactions, co-production, co-development, general reciprocal procurement MOUs, barter like the Patriot and other offset arrangements. To that end, an integral element of the new agency should be a team of individuals experienced in negotiations and in foreign military sales who would provide continuity and be augmented on a case-by-case basis by representatives of Program Managers and other DOD elements.

In addition, the new agency should be given the responsibility of chairing the National Disclosure Policy Committee to assure that technology transfer constraints are reviewed early in the planning and programming process. Further, to safeguard the integrity of the export decision process, the addressee for plant visit requests from foreign embassies on behalf of their governmental representatives or industries should be the new agency rather than the foreign attache offices of the Services.

APPENDIX G

Model for Evaluating Changes in Unit Cost

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Model for Evaluating Changes in Unit Cost

The Defense Systems Management College has developed a limited scope model to give an approximate indication of the impact of a reduction in foreign sales to DOD overall unit acquisition costs. The model was developed by Dr. Rolf Clark who assisted in its application for this paper.

Let: P = the ratio of the revised to the original procurement
 (P_r/P_o) .
 Q = the ratio of the revised to the original quantity
 (Q_r/Q_o) .
 C = the ratio of the new to the original unit cost.
 k = the initializing constant.
 e = the elasticity of unit cost with respect to
 quantity.

Now let the relationship between the variables of cost and quantity take the form (consistent with historical U.S. data):

$$C = kQ^e$$

Then it can be shown that the relationship between Q and P is:

$$Q = (P/k)^{1/(1+e)}$$

Historical data on U.S. systems procurement show that unit cost is reasonably related to quantities through these relationships with k approximately equal to 1.0 and $e = -.33$. The latter implies that fixed costs are about one third of total system cost.

As an example; for FY 92, if the United States wants to purchase the same number units of equipment, but foreign sales are reduced by one-half, then:

1992 U.S. acquisition (Budgeted Procurement and RDT&E):	\$142.131B.
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If assume foreign sales are 10% of total manufacture/procurement or \$14.213B, resulting in a total of \$156.344B for acquisition (see Figure G-1).

If the U.S. loses 50% of foreign sales in FY 92, the total spent on acquisition changes from \$156.344B to \$148.527B, then:

$$P=P_R/P_o = 148.5/156.3 = .953$$

Assuming elasticity of unit cost ratio quantity is = .33 (fixed overhead = 33%) and $k=1$ then:

$$Q=Q_r/Q_o = (P/k)^{(1/(1-.33))} = (.951)^{1.5} = .926$$

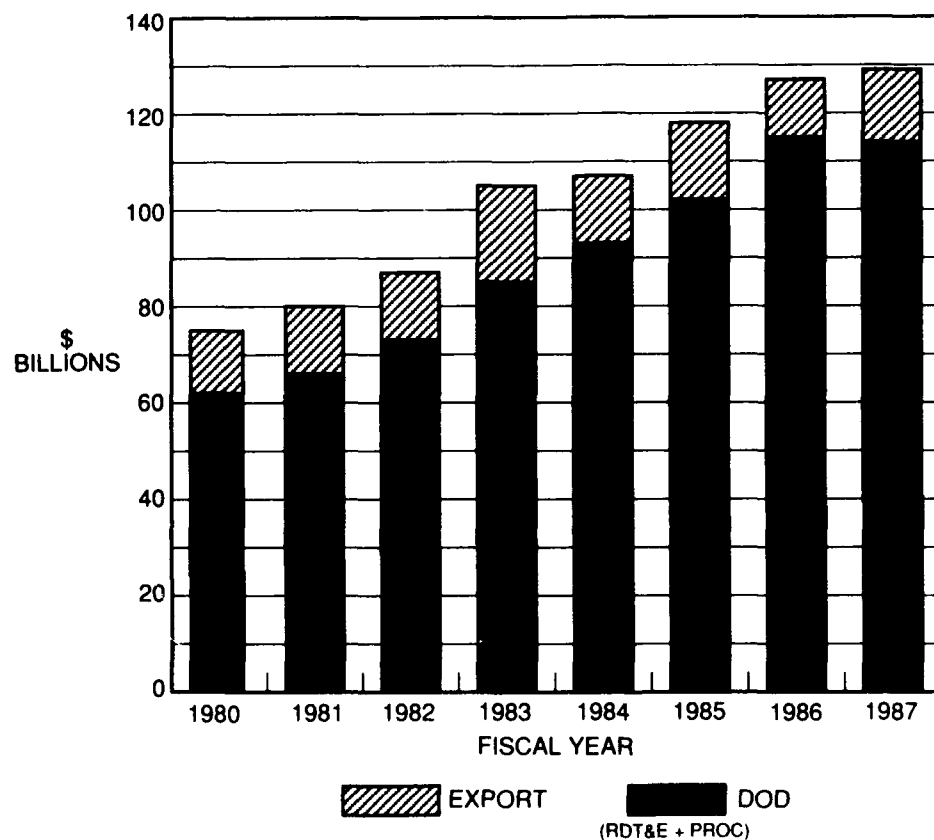
$$\text{then: } C=kQ^{-.33} = 1(.93)^{-.33} = 1.026$$

This implies that unit costs will rise by 2.6%, for a 50% reduction in foreign sales.

Therefore, in FY92, the cost of acquisition for the same total number of units, would rise 2.6% from \$142.131B to \$145.795B or \$3.7 billion (assuming foreign sales are normally 10% above U.S. purchases and are cut by 50%)

Using these relationships, and assuming that changes due to reductions in foreign sales are evenly distributed, if one assumes fixed costs are 33% and foreign sales are about 10% of the total U.S. purchases, then the following can be derived:

<u>Reduction in Foreign Sales</u>	<u>U.S. Costs Increase By</u>	<u>Budget Increase for Same Number of Units</u>
0%	0.0%	\$0.00B
33%	1.7%	\$2.4B
50%	2.6%	\$3.7B
66%	3.4%	\$4.8B
100%	4.8%	\$6.8B



Source: EIA Requirements committee, Electronics Industry Association presentation, 1988.

Figure G-1. Outlays in 1987 Dollars

APPENDIX H

Glossary of Selected Terms

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Glossary of Selected Terms

ACQUISITION COMMUNITY -- Government and industry organizations and personnel involved in the conceptualization, initiation, design, development, test, contracting, production, deployment, and logistical support of weapons and other systems, for use in, or support of, military missions.

ARMAMENTS COLLABORATION -- A term covering all forms, other than outright sales, of international arms programs resulting from government-to-government agreements, or from government approval of export licenses. Methods of armaments collaboration range from U.S. adoption of a foreign system to a friendly foreign nation adopting a U.S. system. In between these alternatives are cooperative programs (e.g., co-research, co-development, co-production, and co-support), dual production, licensed production, family of weapons, package concepts, and acquisition of components that contribute to interoperability.

BRITE -- Basic Research in Industrial Technologies for Europe. A European Commission program which promotes research in the field of manufacturing industry technologies.

BURDENSARING -- A term used to refer to the division of economic and military resource costs borne by each member of the NATO alliance.

CAPS -- Conventional Armaments Planning System. Instituted by CNAD in 1987, CAPS is designed to bring together national armaments plans and NATO mission requirements in a 20-year NATO conventional armaments plan.

CEN -- Committee for European Standardization. Established by the European Commission to formulate an EC-wide set of technical standards for manufactured and agricultural products. The CEN will also formulate EC testing and certification regulations.

CENELEC -- Committee for European Electrotechnical Standardization. Sister committee to CEN. CENELEC will focus on creating an EC system of technical standards for electrical equipment.

CNAD -- Conference of National Armaments Directors. The NATO organization established to encourage and assist in arms cooperation projects for the purpose of improving standardization and interoperability within NATO forces. Meets at the national armaments director and defense ministerial level. The United States representative to the CNAD is the Under Secretary of Defense for Acquisition.

CO-DEVELOPMENT -- Systems or subsystem cooperatively designed and developed in two or more countries. Shared responsibilities include design and engineering, and may be expanded to include applied research.

COMMON MARKET -- The single market or trading entity formed by the united national markets of the European Community nations where goods moving between countries are not subject to tariffs, and imports enter under uniform conditions.

COMPETITIVENESS -- For a nation, it is the degree to which it can, under free and fair market conditions, produce goods and services that meet the test of international markets while simultaneously maintaining and expanding the real income of its citizens.

COOPERATIVE PROGRAMS -- Joint international research, development, production or support of defense systems.

CO-PRODUCTION -- Production of a system in two or more countries. Involves the transfer of production technology and complex or sensitive subsystem components from the country of origin to countries producing the system. Recipient may expand production to include subsystems and components.

CRITICAL MASS -- Individual firms, or industries, achieving a sufficient size to take advantage of pooled resources, and capable of generating scale economies necessary for world-class competitiveness.

CRS -- Congressional Research Service. The research arm of the United States Congress.

DEBT TO EQUITY RATIO -- A measure of a company's financial leverage (i.e., ability to raise capital), defined as debt divided by shareholder's equity.

DEFENSE INDUSTRIAL COOPERATION -- Arrangements between two or more countries for transfer of defense-related technology from the owner country to recipient countries through industry. Cooperation may involve co-assembly, co-production, co-development, and joint logistics and support operations, the complexity depending on the state of industrial development of the recipient.

DDI -- Developing Defense Industries. The term associated with emerging defense industries of the European countries of Portugal, Turkey and Greece.

DOD -- Department of Defense. United States overall Cabinet- level organization responsible for planning and executing the defense of the United States, executing daily oversight, and direction of the uniformed services for the President.

DPACT -- Defense Policy Advisory Committee on Trade. A group of senior-level industry executives representing the defense contractors' community. Formed to provide an industry perspective to the DOD on defense industry related matters.

DSB -- Defense Science Board. The DOD chartered board of distinguished scientists and executives who investigate, report, and recommend courses of action to the Secretary of Defense on items of interest to the DOD.

DUAL-USE -- Any manufactured item which can be used for either military or civilian purposes. Examples of dual-use goods include: electronics equipment, communications systems, off-road vehicles, and aircraft components.

EC -- European Community, comprises 12 western European countries: Belgium, Denmark, the Federal Republic of Germany, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, and the United Kingdom. These countries have agreed to cooperate in setting common trade regulations and free passage provisions and in forming a customs union with the goal of full economic integration among members. The EC was formed from three overlapping European organizations: the European Coal and Steel Community (est. 1952), Euratom (est. 1956), and the European Economic Community (EEC) (est. 1957). The three now share common institutions (European Council, Commission, Parliament, and Court of Justice).

ECU -- European Currency Unit. A currency unit representing a weighted average of several European currencies. Established in 1979 as a precursor to an eventual single European currency, the ECU was equal to approximately \$1.25 in 1988.

EDIG -- European Defense Industries Group. Established to provide support and advice on industry matters to the IEPG. Made up of members of the NATO Industrial Advisory Group (the industrial counterpart to NATO's Council of National Armaments Directors), The EDIG organization closely mirrors the structure of the IEPG.

ESPRIT -- European Strategic Program for Research and Development in Information Technologies. An EC R&D program focusing on fundamental and applied research related to microelectronics, software, advanced information processing, and computer-integrated manufacturing.

EUCLID -- European Cooperative Long-Term Initiative for Defense. The R&D program proposed by France and established by the IEPG in 1989 which will focus on key defense technologies such as microelectronics, composite materials, modular avionics, etc.

EURAM -- European Research in Advanced Materials. A European Commission R&D initiative which promotes research in the field of industrial materials.

EUREKA -- A framework for industry-led projects aimed at producing high technology goods and services usually downstream of, and complementary to, EC programs. The EUREKA program is not an EC sponsored program, as is EURAM or ESPRIT. There are 19 countries participating in the EUREKA program, including the 12 EC member states plus Austria, Iceland, Switzerland, Sweden, Norway, Turkey, and Finland. The program was started as a French initiative in 1984 as a civilian European alternative to participation in the U.S. Strategic Defense Initiative.

EUROPEAN COMMISSION -- The executive body of the EC. The commission functions as a policy-planning body, initiates Community action on issues, acts as a mediator between member governments, submits policy proposals through the European Council, and implements Council decisions. The Commission also has the authority to take governments or firms before the European Court of Justice for infractions of Community law.

EUROPE 1992 -- A European Community plan for new laws and regulations that by the end of 1992 will remove all barriers to the free movement of goods, services, capital and people between the European Community nations.

EUROPEAN COUNCIL -- The organization within the EC comprising member Heads of State, their foreign ministers, and the President of the Commission. The Council acts as a body for coordination of economic policy and political cooperation within the EC.

FAMILY OF WEAPONS -- Involves the creation of families of weapons for systems not yet developed. Under this concept, participating nations reach early agreement on the responsibilities for developing complementary weapon systems in a mission area.

HORIZONTAL INTEGRATION -- The expansion of a company into similar type businesses that can complement its expertise. The integration, or merger, of businesses at the same level of production can take a variety of forms ranging from incorporation into a loose group structure to full legal mergers in which one or both of the merging companies ceases to exist as a separate legal entity.

IEPG -- Independent European Program Group, established in 1976. A collection of defense acquisition representatives from EC countries formed to expedite European armaments cooperation. Membership comprises all NATO countries, except Iceland, the United States, and Canada.

INFRASTRUCTURE -- The basic installations and facilities on which the continuance and growth of a community, state, etc., depend. Examples are roads, schools, power plants, transportation, communication systems, etc.

INTEROPERABILITY -- The ability of military systems, units or forces to provide services to and accept services from other systems, units or forces and to use the services so exchanged to enable them to operate effectively together.

JOINT VENTURES -- The business activities of two, or more, independent companies to jointly develop, or produce, a marketable product utilizing the unique skills and strengths of each organization.

JUSTE RETOUR -- "just return." Juste retour is basically a managed trade concept whereby each nation receives defense business somewhat equal to the amount of defense business that it gives to other nations.

NATIONAL CHAMPION -- A country's preferred company that supplies a given product. For economic, social and political reasons, national procurements often favor these companies.

NATO CAPS -- NATO Conventional Armaments Planning System. An effort initiated in 1987 to relate NATO force planning to national R&D. The CAPS is designed to bring together national armaments plans and NATO mission requirements in a 20-year NATO conventional armaments plan.

NUNN AMENDMENT -- A 1985 amendment to the Arms Control Act that sets aside funds for cooperative development programs between the United States and its allies.

OFFSETS -- Arrangements in international arms trade in which the seller agrees to grant the buyer certain benefits in addition to the actual terms of sale for the equipment being purchased. Direct offsets may include coproduction or licensing work performed in the buyer's country. Indirect offsets may include marketing an unrelated product of the purchaser in the seller's home country.

OVERCAPACITY -- A situation that develops when an industry's capacity for production (supply) exceeds the market demand.

PROTECTIONISM -- Any system that guards a domestic industry through such measures as taxes, tariffs, import quotas, government buying procedures that favor the domestic industry, or outright banning of goods from other nations.

PUBLIC PROCUREMENT -- As used in context with European Community concepts, government purchases of goods and services not including defense weapons. Public

procurement includes government supplies such as desks, uniforms, etc; transportation systems; constructions projects such as roads, bridges, subways, etc.

RACE -- Research and Development in Advanced Communications Technologies for Europe. A European Commission R&D initiative which is aimed at helping the telecommunications industry.

SAD -- Single Administrative Document. A single EC document used to facilitate cross-border travel of members nations' goods. Replaces the multitude of separate documents required before establishment of the Europe 1992 initiatives.

SINGLE EUROPEAN ACT (SEA) -- The 1986 revision of the founding treaties of the European Community that established a new plan and commitment toward achieving an integrated European marketplace. Among other provisions, the SEA empowered the European Council to adopt legislation concerning issues related to the internal market through qualified majority vote vice unanimous vote.

STANDARD -- A commonly accepted regulation which specifies a product performance, a method of measurement, or a testing procedure.

STANDARDIZATION -- The process of coming to agreement on what will be a commonly accepted standard. In NATO, a term used to denote common military hardware, particularly that which uses interchangeable supplies.

STRATEGY -- In the context of this study, strategy is a deliberate search for a plan of action that will develop a business competitive advantage and compound it.

STRATEGIC ALLIANCES -- The joining of companies to produce a product using each other's strengths in a specific manufacturing or marketing area.

STRUCTURAL DISARMAMENT -- A reduction in available weapon systems caused by an exponential rise in per unit costs of weapon systems as defense budgets fail to match the rise in unit costs. Most observers attribute the exponential rise in per unit costs to inefficient economies of scale due to national and international duplication and rising costs associated with developing higher and higher technology weapon systems.

TARIFF -- A system of duties imposed by a government on imported goods for the production of revenue, the protection of domestic industries, or as a means of forcing foreign governments to grant reciprocal trading privileges.

TEAMING -- Companies joining together for a complex project to utilize their respective areas of expertise to mutually benefit each other and to achieve the project's goals and objectives. Usually short-term and project specific, ending when the project is completed.

TOTAL PACKAGE APPROACH -- A variety of armaments collaboration. The total package concept of armaments collaboration involves the exchange of benefits or obligations outside a program's immediate area to balance program participation. In essence, each party to the program equitably shares in economic benefits and obligations, though not necessarily economic benefits and obligations directly associated with the cooperative program, thus avoiding any offset requirements. Packaging can be done by government-to-government, industry-to-industry, and industry-to-government agreements.

TREATY OF ROME -- The two treaties of Rome, EURATOM and EEC, signed by six European states in 1958 to establish the European Community.

TWO-WAY STREET -- The numerical trade balance in defense goods between the United States and its NATO allies. The idea that there should be a reasonably equitable balance of trade in military goods between the United States and NATO Europe to ensure equality and a balance of defense industrial capability.

U.S. DIRECT INVESTMENT -- The ownership, acquisition, or establishment directly or indirectly by a U.S. individual, association, corporation, government, etc., of 10 or more percent of the voting securities of a foreign enterprise.

VERTICAL INTEGRATION -- The acquisition by a major company of business activities that supply materials and supplies for their end major products. Also known as a vertical merger since businesses which are vertically related in the production chain are brought together.

WEU -- Western European Union. A political organization composed of the Ministers of Defense and State from nine major European countries: Belgium, France, West Germany, Italy, Luxembourg, the Netherlands, Portugal, Spain, and Turkey. They address economic, foreign policy, and defense issues which affect Europe.

APPENDIX I

Bibliography

APPENDIX I

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APPENDIX J

Interviews and Personal Sources

APPENDIX J

Interviews and Personal Sources

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APPENDIX K

Interview
Discussion Topics

APPENDIX K

Interview Discussion Topics

EUROPEAN DISCUSSION TOPICS

1. What impact do you feel Euro 92 will have on the European defense industry as a whole?
2. Do you think specific points of the Euro 92 program will impact the European defense industry? For example, do you think the below 1985 white paper proposals will affect European defense industries:
 - Freer movement of labor/personnel
 - Increased standardization within Europe
 - Elimination of fiscal barriers
 - Etc.
3. What general European defense industry trends are being facilitated by Euro 92? For example, do you see more:
 - Strategic alliances
 - Joint ventures
 - Cooperative R&D programs
 - Increased diversification/program mix
 - Co-production initiatives
 - Consortia
 - Etc.
4. Will your company's corporate strategy change significantly as a result of Euro 92? If so, can you tell us the general direction in which your strategy is headed?*

5. Do you expect your government to play a different role with respect to defense industry policy under Euro 92? If so, what differences do you foresee?
6. What relationships exist between your company and the Independent European Program Group (IEPG)? Does your company support the IEPG through the European Defense Industry Group (EDIG)?*
7. Have you seen an increase or decrease in cooperative European defense programs in the last two years?
8. Have you seen an increase or decrease in cooperative European/U.S. defense programs in the last two years? If so, would you attribute this increase or decrease to Euro 92 or other factors?
9. Does your company team with U.S. firms on joint projects? If you do, can you give us some idea of which joint projects you are involved with? If not, are there barriers to teaming with U.S. defense firms in cooperative projects?*
10. Do you feel that the European defense industry will be more competitive in the world market as Euro 92 is implemented? If so, to what would you attribute this increase in competitiveness?
11. Do you feel that U.S. defense industries will be less competitive within the EC as a result of Euro 92? If so, why?
12. Could you provide us with organization charts which show:
 - Strategic alliances
 1. Worldwide
 2. U.S.A
 3. E.C.
 - Second and third-level primary subcontractors?*
13. Will the events unfolding in the Eastern Bloc nations significantly impact the European defense industry?*
14. Could you provide us with a copy of your annual report?*
15. Any general or specific comments from your perspective relating to this topic or our study will be appreciated.

Questions marked with an asterisk () are directed toward commercial vice government personnel.

UNITED STATES DISCUSSION TOPICS

1. What impact does your company feel Euro 92 will have on the U.S. defense industry as a whole?
2. What are the current U.S. defense industry trends that may be developing in anticipation of Euro 92?
 - More strategic alliances
 - More joint ventures
 - Cooperative r&d programs
 - Increased diversification/ program mix
 - Co-production initiatives
 - Consortiums
 - Etc.
3. Will your company's corporate strategy change significantly as a result of Euro 92 and, if so, have you published a plan to effect this change in strategy?
4. Do you expect our government to play a different role with respect to defense industry policy as Euro 92 approaches implementation than it has before? What is your position regarding U.S. or European government actions or policies that support or hinder competitiveness in the United States and Europe?
5. Is your company considering teaming with Euro defense firms in joint projects?
6. Do you feel that the U.S. defense industry will be more/less competitive as Euro 92 is implemented?
7. Could you provide us with your company's corporate organization chart which details:
 - Strategic alliances
 1. Worldwide
 2. U.S.A
 3. E.C.
 - Second and third-level primary subcontractors
8. Will the events unfolding in the Eastern Bloc nations significantly impact your corporate strategy?




9. Could you provide us with a copy of your annual report?
10. What policies would you like to see our government pursue/adopt that would help make your company more competitive in the E.C. and worldwide?
11. Could you provide us with any papers/briefings/publications concerning Euro 92 produced by your company?
12. Does your company have any specific recommendations to ensure that the U.S. defense industry remains viable in the face of Euro 92?
13. What percentage of your total sales and profits are derived from foreign direct sales and foreign military sales (FMS)?
14. Any general/specific comments from your company's perspective relating to this topic or our study?

APPENDIX L









Critical Success Factors for International Program Management

SOURCE: The Management of International Cooperation Projects, C. Michael Farr, with contributions by Robert D. Materna, a research report compiled for the Defense Systems Management College in support of the Advanced International Management Workshop.

CRITICAL SUCCESS FACTORS FOR INTERNATIONAL PROGRAM MANAGEMENT

Legend:	 Characteristic is present	 Characteristic is partially present	 Characteristic is absent
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Clear Vision:

SUCF'L	UNSUCF'L	FACTORS	COMMENTS
		Strongly shared sense of need or mission	"Win-Win" sense of mission important
		Clear and common requirements:	Goals must be harmonized and operational requirements should be clearly specified before program enters the acquisition process
		- Cost	Production and cost sharing arrangements must be clearly specified in the MOU
		- Schedule	Especially important that int'l programs be based on sound technical concepts
		- Technical	Technological advances should be made in an evolutionary incremental fashion











Top Management Support:

SUCF'L	UNSUCF'L	FACTORS	COMMENTS
		Effective Program Manager should have appropriate:	
●	◐	- Rank	Minimum rank of Colonel
●	◐	- Experience	Managing partners should be equal in rank
●	◐	- Authority	Managerial experience most important
●	○	- Stability	International experience desirable
		An Effective Steering Group:	Technical experience a bonus
●	◐	- Should have all partners represented with equal vote	Authority of PM must be clear and sufficient for the job
●	◐	- Should have real decision-making authority and the ability to make decisions in a timely manner	PM should be involved in negotiating MOU
●	◐	- Should not be involved in the routine management of the program	PM turnover must be minimized
			Civilian deputy PM may be helpful

Qualified Program Office Personnel:

SUCF'L	UNSUCF'L	FACTORS	COMMENTS
		In addition to the Program Manager, other program officer personnel should:	
●	◐	- Have prior program management experience	People who are new to the acquisition process should not be directly assigned to int'l programs
◐	○	- Have prior int'l management experience or training in int'l management	Frequently suggested topics for education and/or training include: <ul style="list-style-type: none"> - Fundamentals of int'l law - Fundamentals of technology transfer regulations and policies - An understanding of the program approval, budgeting, and financial processes of participating firms and governments - An understanding of cultural and work ethic differences - An understanding of how to deal with exchange rates - Access to lessons learned from previous int'l programs
●	○	- A strong sense of loyalty to the program	As opposed to nationalistic view
●	○	- Be co-located and able to perform in more than just a liaison role	There should also be a sense that benefits from the program are being appropriately shared and that no partner is being exploited
			Staffing for co-located personnel must be worked well in advance

Ability to Overcome External Obstacles:

SUCF'L	UNSUCF'L	FACTORS	COMMENTS
		- Geographical separation	<p>Techniques that help:</p> <ul style="list-style-type: none"> - Computer-based electronic mail - Facsimile machines, including enough to handle classified - Using authorized contractors to courier classified information - Establishing a classified telephone network with sufficient phones in the right places for decision-makers - Factor jet lag into travel planning and meeting schedules
		- Differences in culture	<p>Clearly identify all holidays and build into plans</p> <p>Understand how different work standards may affect schedules</p> <p>Developing a sense of mutual trust is important</p>
		- Differences in language	<p>Specify official language(s) in MOU</p> <p>Arrange for interpreters and for documents to be translated</p> <p>Use bilingual team members when possible</p>
		- Differences in managerial philosophies and practices	<p>Different contracting policies, procedures, and terms must be defined and understood</p> <p>Each participant's program approval, budgeting, and financial processes must be understood</p>
		- Different technical capabilities	<p>Participating firms should be of similar size and capabilities</p> <p>Technical contributions should be balanced</p>